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STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION • PROCESSING • DISTRIBUTION • USE

The Week in Perspective

IF WASHINGTON had declared a moratorium on iron and steel buying, it hardly could have slowed up the markets more than is the problem of piecing together the puzzles presented by the new code and its system of selling. . . . One deluge of new price schedules, and a drouth of orders, appears to be enough; producers are extending most of the prices (p. 43) for the remainder of the year. . . . Uncertainties of the situation are clearly discerned (p. 18d) in another 3-point decline in steelworks operations to 42 per cent. . . . They began to manifest themselves in August (p. 18c), with a 16 per cent reduction in daily ingot output to 107,430 gross tons; though, excepting July, production was the largest since March, 1931.

Freight Rates Key to New Competition

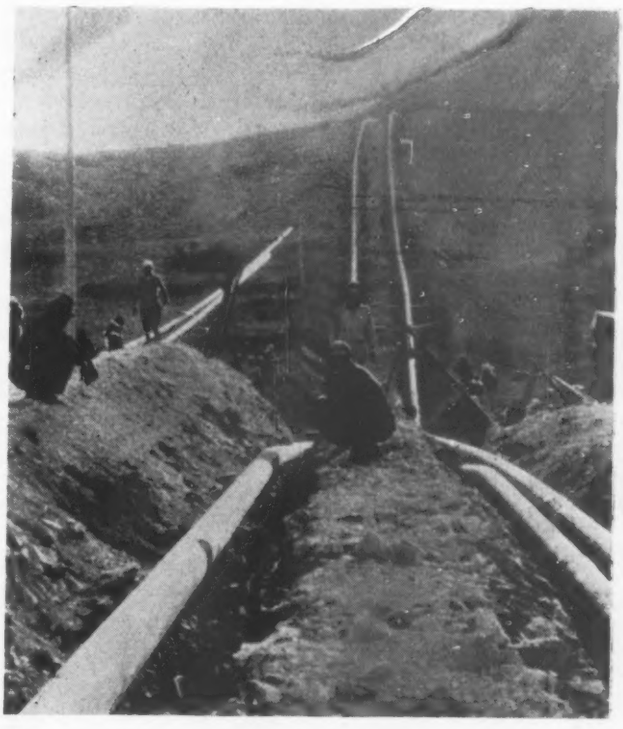
Overshadowing all other activities in the industry is the work (p. 11) on several volumes of price schedules; and, more important than ever, underlying the competitive structure (p. 14) are freight rates. Keen minds will find their greatest opportunities there . . . . Probably a dozen codes closely related to the steel industry (p. 17) are nearing final approval . . . . The board of directors of the American Iron and Steel institute has issued (p. 15) supplementary regulations clearly defining the status of jobbers . . . . Basic industries are perfecting machinery for the administration of their codes (p. 18a), but pressure on the NRA is relaxing.

Steel Requirements Growing; PWA Slow

While public work in all sections of the country is lagging, most of it awaiting aid which the R.F.C. and the PWA are slow to authorize (p. 18a), a few active projects promise to place more than 100,000 tons of steel on mill books shortly (p. 43) . . . . European business, according to STEEL's cable, freed from summer lethargy, and sans code complications, is snapping back quickly; French producers (p. 65) report better profits.

New Materials Pressing for Recognition

New materials are appearing steadily. A silicon carbide brick (p. 27) bonded by carbon and coated with a borosilicate glaze to prevent oxidation, suitable for electric furnace use, shows low thermal expansion and high electrical and thermal conductivity. . . . A phenolic bearing material (p. 27) has been developed for the radial part of roll neck bearings. Advantages which make it more serviceable for severe applications are claimed for it. . . . A lubricant for gears, as packing



Photo, Lincoln Electric Co., Cleveland

Modern wonder in cradle of Christian civilization: Over mountains, across valleys, goes this 1180-mile pipe line through rich oil fields in Iraq, formerly Mesopotamia. American welders and equipment are doing the job in "jig" time

and as belt dressing (p. 34), contains finely divided particles of metallic lead 10 per cent up to 65, providing a thin protective film on all contacting surfaces. . . . An accelerated endurance testing machine (p. 30) facilitates study of probable life of leather belts, which often varies from three to 30 years. Two belts are operated against one another, running over pulleys of slightly different diameters so that each belt is forced to slip about 5 per cent.

Luminous Signal Board Checks Blast Furnace

To give a complete check on the progress of charging a blast furnace, a German manufacturer has developed a luminous signal board (p. 28) which by means of lighted panels automatically indicates the progress of the entire charging cycle, such as how many skiploads are on the large or small bell, position of distributor, height of stock, and the like. . . . Photoelectric equipment for indicating and recording the density of smoke passing through stacks or breechings of power and heating plants (p. 37) is now available for commercial use. . . . And furnace and recording equipment has been perfected (p. 30), to measure the curie point (temperature at which magnetism is lost) of elements or alloys.

Welding Reduces Crankcase Weight

A 1000-horsepower diesel engine crankcase (p. 25) constructed by welding weighed only 2.6 pounds per horsepower, and the entire engine less than 10 pounds per horsepower, contrasted with weights ranging from 40 to 250 pounds per horsepower for units built in the usual way. A welded crankcase for a 10-cylinder radial aircraft engine weighed less than 1 pound per horsepower. . . . A 23-foot model of a complete bonderizing plant for rust-proofing automobile parts (p. 35) is attracting thousands of visitors at *A Century of Progress* in Chicago. Nearly 450 pieces, including miniature fenders, about 4 inches long, are suspended from a conveyor and moved through the various steps in the process.

Large Steel Tonnage in Tackle Blocks

Tackle blocks, of which there are thousands in daily use by steel erectors, oil well drillers and manufacturing plants, are one of the oldest mechanical devices. In their construction, steel and iron figure prominently (p. 37), a typical size embodying 400 pounds of these materials. . . . Study of the life of leather belts, which often varies from three to 30 years, is facilitated by an accelerated endurance testing machine. In this machine (p. 30) two belts are operated against one another, running over pulleys of slightly different diameters so that each belt is forced to slip about 5 per cent.

The VOICE of INDUSTRY

Communications appearing here do not necessarily reflect the opinion of STEEL *or of its editors.*

"Public Opinion . . . Will Decide"

(Editorial from The Post-Tribune, Gary, Ind.)

Aug. 22, 1933

"The magazine STEEL is a trade publication of the steel industry and as such its chief interest is the prosperity and progress of the industry. In this week's issue it objects to the "poor press" the industry gets and blames its leaders for not paying more attention to the public.

"The interests of *The Post-Tribune* are also bound up with steel for steel made Gary and only through the progress of steel can Gary progress. Yet we think the words of STEEL are timely and well spoken. The industry has failed to learn the value of publicity, although it is only through publicity that proper public relations can be maintained.

"We think this attitude by the leaders of the steel industry is due almost entirely to a misunderstanding of the public's interest in the industry. *The Post-Tribune*, through many years, has in innumerable instances queried heads of the United States Steel Corp. and its subsidiaries by letter, telegraph and telephone about matters of public interest and has always met with courtesy and a sincere willingless to provide desired facts,

"But it has often been a difficult job to get to the individual who can supply the information desired. Heads of plants often feel a hesitancy in supplying information, probably because they fear their action would not be approved in New York. The value of publicity, apparently, has never been regarded very highly.

"But times are changing very rapidly and in no respect is that change taking place so quickly as in the public relations of industry. A new industrial society is being created before our eyes, one that is bringing a hitherto unknown relationship with and responsibility to public opinion. Certainly it is one of the great experiments of all time and it may be completely revolutionary.

"The steel industry should be wide awake and moving. Many old methods are being discarded for new ones and public opinion will, in the long run, decide which shall be retained. Therefore public opinion must be formed on facts and not hearsay. That has now become a necessity in the progress of steel."

Associations Face Acid Test

A thousand new trade associations will be formed within the next few months, all with high hopes and profuse, easy promises. Most of them will fall short not only of expectations but also of easy possibilities, and some will come to real grief. With the greatest opportunity in the history of American business ahead of them, only those will succeed which have adequate management. No statute can abolish economic principles and the managers of trade associations must accept and temper their activities to meet those principles. If the objective is the maintenance of standards of integrity, quality, competitive conduct and value in business, no single set of rules will be adequate for all industry. To achieve the objective, each trade association manager must determine, adopt and enforce the particular methods necessitated by the type of commodity produced, its place in the chain of distribution, and the type of distribution, of consumption, pricing and, finally, of management in the industry.

—JOHN M. BYRNE,
in *National Sphere*, July, 1933.

Steel Perfecting Machinery To Cope with Code Problems

FACING one of the most important tasks in its history, the iron and steel industry now is engaged in building an elaborate organization to administer and assist in the functioning of its recently approved code of fair competition.

This organization is being developed around the nucleus of the American Iron and Steel institute. The institute's executive board acting for the institute's board of directors, is the active executive head of the machine. The administrative committee, closely paralleling the executive board in personel, is directly charged with administrating the code. It is surrounded by important auxiliary committees—one on labor, one on statistics, one on commercial problems and one on transportation. The members of the first three named committees are listed on this page. The transportation committee has not been appointed.

The task before the members of this organization is greater than any the industry has faced previously, except for the war period when steelmakers organized to speed up production. Possibly that exception can be ruled out, because today there are numerous complications which were unknown in 1918.

Problem Is More Complex

For instance, the problem of instituting a complete new price structure, as contemplated under the code, is much more complex than the price problem of the war period. As shown in last week's issue, and on pages 12 to 14 in this issue, the new price schedules involve many changes in extras. Methods of quoting are prescribed more definitely. That the new price structure has great possibilities is appreciated on all sides. The great majority of producers and consumers want it to work successfully. Yet the difficulties of establishing it are known. The task of ironing out discrepancies and inequalities will provide work for the code administration for weeks. Indicative of what will happen is the question raised among tool steel buyers by the supplementary regulation for jobbers. The tool steel men believe the regulation prevents them from purchasing stocks in less than carloads. They want the point clarified.

Another complication not present in wartime is the labor situation. Fired by enthusiasm over NRA's apparent solicitude for unions, labor organizers are extremely active throughout the industry. Radicals are trying to gain footholds in some of the unions. NRA has avoided a definite commitment on labor relations. The situation is tense and many observers feel that chairman Frank Purnell's committee will face serious problems before many weeks have passed.

Superimposed upon these immediate problems is the importance of restoring the industry to a basis of profitable operations at the earliest possible moment. This involves volume and prices. There is evidence that in Washington the prevailing opinion is that the industry should strive for its profit through increased volume at relatively low prices. The attitude of Washington on money for rail purchases is indicative of this thought.

The steel industry also has a problem in convincing large consumers that the new price structure is equitable.

In view of all of these difficulties, the new machinery will be given a thorough trial during the next few months. While the new organization has all of the appearance of an emergency expedient, it may be called upon to function for a long time. The new marketing practice alone will require continued careful supervision over a long period before it can be established on a smooth running basis.

Institute's Code Committees

Administrative Committee

W. A. Irvin, United States Steel Corp., *Chairman*

E. G. Grace, Bethlehem Steel Co.
Tom Girdler, Republic Steel Corp.
L. E. Block, Inland Steel Co.
Hugh Morrow, Sloss Sheffield Steel & Iron Co.
E. T. Weir, National Steel Corp.
W. J. Filbert, United States Steel Corp.

Labor Committee

Frank Purnell, Youngstown Sheet & Tube Co., *Chairman*

Ralph Watson, United States Steel Corp.
R. J. Wysor, Republic Steel Corp.
Joseph M. Larkin, Bethlehem Steel Co.
C. R. Hook, American Rolling Mill Co.
A. J. McFarland, Wheeling Steel Corp.
F. E. Fieger, Jones & Laughlin Steel Corp.
W. A. Maxwell, Colorado Fuel & Iron Co.
J. C. Williams, Weirton Steel Co.
W. Sykes, Inland Steel Co.
L. E. Geohegan, Gulf States Steel Co.
Jos. B. Andrews, Andrews Steel Co.
W. B. Gillies, Youngstown Sheet & Tube Co.
C. W. Bennett, American Sheet & Tin Plate Co.

Statistics Committee

W. J. Filbert, United States Steel Corp., *Chairman*

F. A. Shick, Bethlehem Steel Co.
A. W. Vogt, United States Steel Corp.
P. F. Boyer, Republic Steel Corp.
C. G. Kingsbury, American Rolling Mill Co.
R. F. Brugler, Bethlehem Steel Co.
W. J. Creighton, Jones & Laughlin Steel Corp.
J. H. Hall, Youngstown Sheet & Tube Co.
(One member yet to be named.)

Commercial Committee

S. E. Hackett, Jones & Laughlin Steel Corp., *Chairman*

D. A. Merriman, American Steel & Wire Co.
Paul Mackall, Bethlehem Steel Co.
B. E. Fairless, Republic Steel Corp.
Jay Andrews, American Sheet & Tin Plate Co.
Henry Roemer, Sharon Steel Hoop Co.
W. W. Holloway, Wheeling Steel Corp.
J. J. Kennedy, National Tube Co.
D. B. Gillies, Corrigan McKinney Steel Co.
B. F. Hufnagel, Crucible Steel Co. of America.
C. V. McKaig, Carnegie Steel Co.
Albert Weihl, Pollak Steel Co.
Jack Gillespie, Lockhart Iron & Steel Co.
F. L. Parker, Columbia Steel & Shafting Co.
Harold Hughes, United States Steel Corp.
C. L. Wood, United States Steel Corp.
Carl C. Brown, Gulf States Steel Co.

Transportation Committee

(To be named)

Producers Refining Schedules; Sheet Extras Are Modified

WHILE representatives of all producers of iron and steel products have worked long hours trying to correlate the new schedules of prices, much still remains to be done before quotations can be made with certainty. The industry is still in a fog on a number of points, and consumers, necessarily, are likewise handicapped.

So far the American Iron and Steel Institute has not placed its stamp of approval on the prices as filed. This may be done at an early meeting of the board of directors. At this writing no date has been set but there are some indications that the board may meet the middle of this week for this purpose. Nothing official on prices has been issued by the institute and therefore the only guide to prices is that furnished by the schedules filed by individual companies.

Last week STEEL presented information on schedules for structural shapes, plates, bars and small shapes, concrete bars, hot rolled strip, stainless steel, semifinished steel and pig iron.

This week new information is presented on sheets, including all grades of hot rolled, cold rolled, porcelain enameling and galvanized sheets and cold rolled strip steel. Further information on the method of quoting pig iron also is presented.

Sheets

The differentiation between bars, plates, strip and sheets is shown in the accompanying table, which is reprinted from page 12 of last week's issue of STEEL for the convenience of readers.

Hot Rolled Sheets

Gage differentials on hot rolled sheets remain unchanged. However the gage differentials on hot rolled annealed sheets has been changed as follows:

Gage Number	Old Differentials Per 100 lbs.	New Differentials Per 100 lbs.
17	Deduct $.35	Deduct $.20
18	Deduct .30	Deduct .15
19	Deduct .25	Deduct .15
20	Deduct .20	Deduct .10
21	Deduct .15	Deduct .10
22	Deduct .10	Deduct .05
23	Deduct .05	Deduct .05
24	Base	Base
25	Add .05	Add .05
26	Add .10	Add .10
27	Add .15	Add .15
28	Add .25	Add .25
29	Add .40	Add .40
30	Add .50	Add .50
31		Add .75
32		Add 1.00

The grade heretofore known and sold as "pickled in the breakdown deoxidized" sheets has been eliminated.

Size extras for hot rolled and hot rolled annealed sheets have been changed slightly. The new extras are as follows:

Hot Rolled and Hot Rolled Pickled

16 ga. and heavier

Width

Gage:	Over 48 to 60	Over 60 to 66	Over 66 to 72	Over 72 to 78	Over 78 to 84
16 and heavier	15	20	25	35	35
13 to 16, inc.	15	25	30	....	....

Length

Gage:	Over 144 to 192 inc.	Over 192 to 216 inc.	Over 216	Under 30 to 24 inc.
16 and heavier	.05	.05	.10	.15

Hot Rolled Annealed and Hot Rolled Annealed Pickled, Continued

Gage	Under 24 to 12	Under 12 to 6½	Under 6½ to 3½	Under 3½ to 2	Under 2 to 1
17-20	.15	.25	....	....	....
21	.15	.25	.50	....	....
22	.15	.25	.50	....	....
23-24	.15	.25	.50	1.00	1.50
25-30	.20	.30	.50	1.25	1.75

Length

Gage	Over 124 to 144	Over 144 to 168	Over 168 to 192	Under 30 to 24
17-18	.10	.15	.25	.15
19-21	.10	.20	.30	.15
22-24	.10	.25	.35	.15
25-27	.15	.30	....	.15
28-30	.20	....	....	.15

Extras for hot rolled, hot rolled pickled, hot rolled annealed and hot rolled annealed pickled sheets follow:

PICKLING EXTRAS	Pickling	Oiling
12 ga. and heavier	$0.15	$0.10
13-16 ga., inc.	.20	.10
17 ga. and lighter	.35	.10

On hot rolled, hot pickled, hot rolled annealed and hot rolled annealed pickled, there shall be no cold rolling for surface, although it is permissible to give these grades of sheets one pass on standard 2-high cold rolls to prevent fluting, flatten and eliminate coil breaks.

DRAWING EXTRAS	
12 ga. and heavier	$0.15
13-21 ga. inc.	.25
22 ga. and lighter	.35

The above drawing extras are to apply wherever the customer requires the supplier to stand for a drawing hazard or surface disturbance.

	Per 100 lbs.
Extra smooth (hot rolled and hot rolled annealed *unpickled* only)	$0.25
(Steam or air blue, 25 ga. and lighter—hot rolled annealed only)	.20

Hot Rolled Annealed and Hot Rolled Annealed Pickled

17 ga. and lighter

Width

Gage	Over 32 to 36	Over 36 to 40	Over 40 to 44	Over 44 to 48	Over 48 to 52	Over 52 to 56	Over 56 to 60	Over 60 to 64	Over 64 to 68
17-18	....	....	....	....	.20	.20	.20	.30	.40
19-20	....	....	....	....	.20	.20	.30	.40	.50
21	....	....	.05	.10	.20	.30	.40	.50	.60
22	....	.10	.15	.25	.40	.60	.80	....	....
23-24	....	.10	.20	.30	.50	.70	1.00	....	....
25-27	....	.15	.30	.50	.60	....	....	....	....
28	.15	.25	.35	.60	....	....	....	....	....
29	.20	.35	....	....	....	....	....	....	....
30	.20	.40	....	....	....	....	....	....	....

Bars, Plates, Sheets and Strip Classified

Hot Rolled To Be Sold As:	3½ in. and narrower	3⅛ in. to 6 in.	6⅛ in. to 23⅞ in.	24 in. to 48 in.	48⅛ in. and wider
Bars	.250 in. and thicker	.250 in. and thicker	.....	.....	.....
Plates	.....	.....	.250 in. and thicker	.250 in. and thicker	.1875 in. and thicker
Hot Rolled Strip	.249 in. to .025 in.	.249 in. to .035 in.	.249 in. to .059 in.	.....	.....
Hot Rolled Sheets	.....	.....	.....	.249 in. to .059 in. (16 ga.)	.1874 in. to .059 in. (16 ga.)
Hot Rolled Annealed Sheets	.024 in. and thinner (24 ga.)	.034 in. and thinner (21 ga.)	.058 in. and thinner (17 ga.)	.058 in. and thinner (17 ga.)	.058 in. and thinner (17 ga.)
Cold Rolled To Be Sold As:	12 in. and narrower		Over 12 in. to 23⅞ in., inc.	24 in. and wider	
Cold Rolled Strip	all thicknesses		.029 in. and thicker	.....	
Cold Rolled Sheets	.....		.028 in. and thinner	all thicknesses and gages	

NOTE: All cold rolled material in coils, all gages and in widths up to and including 23⅞ in. to be sold on cold rolled strip base and card of extras.

(Steam or air blue, 24 ga. and heavier—hot rolled annealed pickled)	.50
Blued sheets (elbow stock, 25 ga. and lighter)	.25
(Special stove pipe stock, 25 ga. and lighter, not pickled)	.40
(Special stove pipe stock, all gages, pickled)	.70
(High grade, all gages)	1.00
Patent or stretcher leveled (not resquared)	.25
Resquaring—side and end and/or sides and ends—add 5 per cent of net item price at time of resquaring. Any sheet that comes within resquaring tolerance the resquaring extra must be added.	
Tack plate quality (in addition to size extras)	.20
Oiling	.10
Lime finish	.10
Deoxidizing	.15
Extra box annealing	.15
Copper bearing steel	.15
Carbon extras:	
Over .25 to .40	.10
Over .40 to .60	.25
Over .60 to .90	.40

The mean of the range must determine the carbon extra. The range shall not be less than 10 points (.10).

SECONDS of hot rolled pickled and hot rolled annealed pickled to be sold at hot rolled or hot rolled annealed prime for same gage without size extras.

When hot rolled pickled and hot rolled annealed pickled seconds can be applied on a prime order by the elimination of defects, price for prime quality shall be charged.

Hot rolled, hot rolled annealed SECONDS or WASTERS shall be sold at the best price obtainable at time of sale.

SHEARING CIRCLES

To determine net price of circles and semi-circles compute net price of finished rectangle from which circles will be sheared, then add extra shown in following table:

	Per 100 lbs.
8 ga. and heavier	$0.50
9 to 16 ga., inc.	.50
17 to 19 ga., inc.	.75
20 to 21 gages	1.00

Note: Extras for lighter than 21 ga. quoted upon application.

PAINTING SHEETS ONE COAT

Red Oxide of Iron

	Per 100 lbs.
12 to 18 ga.	$0.15
19 to 24 ga.	.20
25 to 28 ga.	.25

Priming Coat on Ceiling Stock

28 ga.	.25
29 and 30 ga.	.35

Hot Rolled, 16 Ga. and Heavier

Hot pressing steel	$0.10
Flange steel	.15
Ordinary firebox steel	.20
Locomotive firebox steel	.50
U. S. Navy 48-S-5-D (medium or soft)	.25
Regular sketches	.20
Irregular sketches	.50

STANDARD SIZES

Hot Rolled Sheets:
all gages.
Widths: 24, 26, 28, 30, 36, 42, 48, 60; also 72 in gages heavier than 13
Lengths: 72, 84, 96, 120, and 144..

Hot Rolled Annealed Sheets:
Gages: 24 and heavier—even gages; 26 and lighter—all gages.
Widths: 24, 26, 28, 30, 36.
Lengths: 72, 84, 96, 120.

Quantity Extras Applying on Hot Rolled and Hot Rolled Annealed Sheets, 12 Ga. and Lighter

STANDARD SIZE QUANTITY EXTRAS—Carload Lots.

Any item of standard size ordered as part of carload but less than 10 bundles (approx. 1500 lbs.) 10c per 100 lbs. extra for the item. 10 bundles or over (approx. 1500 lbs.) in standard size, no charge.

STANDARD SIZE QUANTITY EXTRAS—Less Carload Lots (total of order)

	Per 100 lbs.
Less than 10 bundles or 1500 lbs.	$0.75
10 bundles and less than 25 or 1500 lbs. and less than 3750 lbs.	.50
25 bundles and less than 100 or 3750 lbs. and less than 15,000 lbs.	.25
100 bundles or 15,000 lbs. up to carload	.10

(Bundles estimated at 150 lbs. average)

ODD SIZE QUANTITY EXTRAS—Carload Lots

Any item of odd size ordered as part of carload but less than 10 bundles (approx. 1500 lbs.) 10c per 100 lbs. extra for the item—10 bundles or over (approx. 1500 lbs.) in odd size, no extra.

ODD SIZE QUANTITY EXTRAS—Less Carload Lots

Each item of a size	
Under 500 lbs. to 2500 lbs.	.10
Under 2500 lbs. to 1000 lbs.	.25
Under 1000 lbs.	.50
For shipment of extra quantities—carload and less carload	.10

When odd sizes are ordered shipment of 10 per cent over or under each item of quantity ordered is permissible.

CRATING EXTRAS

	Per 100 lbs. Wrapping	Crating
350 to 500 lbs.	$0.10	$0.40
300 to 349 lbs.	.20	.50
250 to 299 lbs.	.20	.60
200 to 249 lbs.	.20	.70
150 to 199 lbs.	.20	.80

Crates of less than 150 lbs., $1.75 per crate, for the crating, 40c per crate for the wrapping.

	Per 100 lbs.
Light boxes, 350 to 500 lbs.	$0.60
Light boxes, 350 to 500 lbs., paper lined	.70

All crates will contain 350 to 500 lbs. unless otherwise specified. No shipments will be wrapped unless so specified.

Note: Packages approx. 5000 lbs. ..... No extra

SIZE EXTRAS—HEAVY AND LIGHT COLD-ROLLED SHEETS

WIDTH

Gage	Over 32 to 36	36 to 40	40 to 44	44 to 48	48 to 52	52 to 56	56 to 60	60 to 64	64 to 68	68 to 72	72 to 78	Under 24 to 12
16 and heavier	.....	.....	.....	.....	.15	.15	.20	.25	.35	.45	.....	.....
17, 18	.....	.....	.....	.....	.20	.20	.20	.30	.40	.50	.60	.....
19, 20	.....	.....	.....	.....	.20	.20	.30	.40	.50	.60	.70	.....
21	.....	.....	.10	.20	.30	.40	.50	.60	.....	.....	.....	.....
22	.....	.15	.30	.45	.60	.75	1.00	.....	.....	.....	.....	.....
23, 24	.....	.20	.40	.60	.80	.....	.....	.....	.....	.....	.....	.15
25–27	.....	.30	.60	.90	.....	.....	.....	.....	.....	.....	.....	.20
28	.20	.40	.80	1.20	.....	.....	.....	.....	.....	.....	.....	.20
29	.30	.60	.90	.....	.....	.....	.....	.....	.....	.....	.....	.20
30	.40	.80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.20

LENGTH

Gage	Over 98 to 108	108 to 120	120 to 132	132 to 144	144 to 156	Under 30 to 18	18 to 10	10 to 16
16 and heavier	.....	.....	.....	.....	.10	.15	.25	.45
17, 18	.....	.....	.10	.10	.15	.15	.25	.45
19, 20	.....	.10	.10	.15	.20	.15	.25	.45
21, 22	.10	.15	.20	.25	.30	.15	.25	.45
23–27	.15	.20	.25	.30	.35	.15	.25	.45
28–30	.20	.25	.30	.35	.40	.15	.25	.45

Cold Rolled Sheets

Gage differentials on heavy cold rolled sheets remain unchanged from the old card. Gage differentials on light cold rolled sheets remain the same except that for 29 gage, add $0.55 instead of $0.60, and for 30 gage, add $0.65 instead of $0.70 per 100 lbs.

The following notes are appended:

Cold rolled sheets must be sold with seconds arising up to the following percentage either included or in addition to tonnage on the order. Price of seconds when shipped with prime orders shall be 10 per cent off net item prime price at basing point.

	Per Cent
0.36 and heavier—42 in. wide and under	15
.036 and heavier—over 42 in. to 48 in.	20
.036 and heavier—over 48 in.	35
.035 to .030—36 in. wide and under	20
.035 to .030—over 36 in.	35
.029 and lighter—all widths	35

Seconds sold when not shipped with primes to be invoiced at base price for primes of hot rolled pickled and hot rolled annealed pickled quality, usual gage differentials, with no size extras charged.

All seconds shipped shall be stencilled with word "Second."

Wasters shall be sold at the best price obtainable at time of sale.

Grades heretofore known and sold as "mill-run cold rolled" sheets and "non-inspected" sheets have been eliminated.

Size extras for heavy and light cold rolled sheets have been modified. The new extras follow:

Drawing extras for heavy and light cold rolled sheets are the same as listed herewith under hot rolled sheets. Other miscellaneous extras for heavy and light cold rolled sheets follow:

	Per 100 lbs.
Hood top quality	$0.25
Oiling	.10
Patent or stretcher leveled (not resquared)	.25
Resquaring—Add 5 per cent of net item price at time of resquaring. Any sheet that comes within resquaring tolerance, the resquaring extra must be added.	
Special nickel plating stock	.50

QUANTITY EXTRAS

Each item of a size	
Under 5000 to 2500 lbs.	.10
Under 2500 to 1000 lbs.	.25
Under 100 lbs.	.50

For shipment of exact quantities ..... .10

When odd sizes are ordered shipment of 10 per cent over or under each item of quantity ordered is permissible.

Crating and other miscellaneous extras are as given under hot rolled sheets.

Porcelain Enameling Sheets

Gage differentials on porcelain enameling sheets of 16 gage and heavier are identical with those for heavy cold rolled sheets. Differentials on 17 gage and lighter are the same as for light cold rolled sheets except that the lightest gage is 26. Size extras for width and length are the same as these extras for cold rolled sheets. Miscellaneous extras, for drawing, quantity, crating and shearing are as given in the foregoing under hot rolled sheets.

Galvanized Sheets

Gage differentials for galvanized sheets are changed in the gages heavier than base, which is No. 24. The new and old differentials are as follows:

Gage	Old Differentials		New Differentials	
10 and hvr.	Deduct	$0.70	Deduct	$0.50
11	Deduct	.65	Deduct	.45
12	Deduct	.60	Deduct	.40
13	Deduct	.55	Deduct	.35
14	Deduct	.50	Deduct	.30
15	Deduct	.45	Deduct	.25
16	Deduct	.40	Deduct	.25
17	Deduct	.35	Deduct	.20
18	Deduct	.30	Deduct	.15
19	Deduct	.25	Deduct	.15
20	Deduct	.20	Deduct	.10
21	Deduct	.15	Deduct	.10
22	Deduct	.10	Deduct	.05
23	Deduct	.05	Deduct	.05
24	Base	Base	Base	Base
25	Add	.15	Add	.15
26	Add	.25	Add	.25
27	Add	.35	Add	.35
28	Add	.50	Add	.50
29	Add	.75	Add	.75
30	Add	1.00	Add	1.00
31			Add	1.25
32			Add	1.50

Standard gages and sizes remain unchanged. Allowable variations for weight are as on the old card. Width and length extras are changed only in that gages 31 and 32 have been added to the tables.

Extras for coating heavier than commercial have been changed slightly in No. 17 and heavier gages. The principal change is in the extras for coatings of over 1.75 to 2 oz., inc. per sq. foot for Nos. 10 to 16 gages inc. The extras now are $0.25 per 100 lbs as against $0.20 previously.

Drawing extras, crating extras and quantity extras are as shown under hot rolled sheets. Other miscellaneous extras for galvanized sheets are as follows:

Stretcher leveling.....$0.40 per 100 lbs.
Resquaring (if not stretcher leveled) ..... 7½ per cent
Resquaring (if stretcher leveled) ..... 12½ per cent
Any sheet that comes within resquaring tolerance the resquaring extra must be added.
Windmill quality (stiff) .15 per 100 lbs.
Copper bearing ..... .15 per 100 lbs.

SHEARING CIRCLES:

	Per cent
16 ga. and heavier	35
17 to 19 ga., inc.	40
20, 21 ga.	45

Add size extras for rectangle before extra for shearing.

GALVANIZED SECONDS

Seconds arising in the production of galvanized sheets when shipped with primes (but not roofing sizes) and not to exceed 5 per cent of total quantity shipped shall be sold at 50c for 25 ga. and lighter, and 75c for 24 ga. and heavier less than item price of primes.

Seconds and wasters are not to be sold to any buyer for conversion into roofing.

Galvanized seconds when shipped without primes shall be sold at 50c per 100 lbs. for 25 ga. and lighter and 75c per 100 lbs. for 24 ga. and heavier, less than prime price for same gage without size extras.

We consider it an unfair practice to produce galvanized seconds in any way except as they may arise in the production of an order for prime sheets.

When galvanized seconds can be applied on a prime order by the elimination of defects, price for prime quality shall be charged.

Wasters and side and end shearings should be sold at best price obtainable at time of sale.

Cold Rolled Strip

Standard extras for cold rolled strip remain unchanged except that extras are filled in the lower right hand part of the table, where heretofore no extras for the lighter gages in wider coils have been shown. This applies to both hard and soft coils.

In addition a special list of extras for coils lighter than .010 has been added. The thicknesses range from .009 in. to .002 in. and the extras (to be added to the extra for .010 in. coils) range from $0.50 to $14.00 per 100 lbs.

Extras for cut lengths 24 in. and longer in hard and soft material remain unchanged. Other extras, including boxing, quantity, edges, finish, copper and carbon are as on the old card.

The following special notes are appended:

1. Eliminate all special conversions of hot rolled strip, prime or second material.
2. No cold rolled strip seconds will be shipped with prime material.
3. Price for cold rolled strip seconds to be 50.00c per 100 lbs. less than the prime price for the same gage, size and temper.
4. Rejected ingots or rejections of off-grade hot rolled strip will not be rolled into cold rolled strip for sale as seconds. Any cold rolled strip seconds for disposal will accrue only from the processing of prime orders.
5. Quoting No. 2 and No. 3 tempers on the hard extras is an unfair practice and should be eliminated. Material for flat work only is to be on the basis of No. 1 temper. Butt stock 0.50 and heavier to be sold on cold rolled strip base plus the hard extra to butt manufacturers only.
6. Discount for uncropped coils to be eliminated.

Pig Iron

Further clarification of the code system of selling pig iron shows that in nearly every instance the price to consumer is determined by the price at the basing point nearest him, plus freight from such point to his plant.

The producer does not pay or "absorb" any of the transportation charges. If the consumer is located near the furnace at his basing point the freight may be only a switching charge, plus the emergency surcharge. These surcharges as recently noted in STEEL, expire Sept. 30.

A furnace in one district may sell in any other district, but then it is governed largely by the base price in that district, plus the freight from that district's basing point to the consumer.

For example, under the present price set-up a Cleveland furnace may sell in the Toledo district, but it must quote to the consumer in that district a price not less than the Toledo base price, plus the freight from Toledo to the consumer. A Buffalo furnace may sell in Boston, but in such case it could not sell for less than the base price at Everett, Mass., plus the freight to Boston.

Competition, however, is by no means wiped out. A furnace may at any time give ten days' notice that it will change its base price. A consumer in any district may buy pig iron from any source. If a furnace decides to reduce its base price, and a consumer in another district considers it advantageous to him to buy from that furnace, a furnace in the consumer's own district has the right to immediately meet this delivered price, even if it is less than his own base price, plus freight to the consumer.

As a concrete example: Assume that the base price in District A is $18, and that it also is $18 in District B. The freight rate from District A base to a consumer in District A is $1, and the freight from District B base to the same consumer is $1.50. District B. furnace may meet the delivered price to that consumer.

In the event that, on ten days' notice, District B furnace reduces its base price to a level which would result in a lower delivered price to this consumer than exists from Dis-

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Board Issues Supplementary Regulations on Schedule E

IN ORDER to clarify certain provisions of the code, the board of directors of the American Iron and Steel institute have prescribed certain supplementary regulations under Section 4 of Schedule E and have adopted seven commercial resolutions covering special cases in connection with the marketing of steel.

The commercial resolutions, seven of which have been adopted, pertain to special terms for Pacific Coast jobbers; special terms for woven wire fencing, pipe, and products in indirect export; and arbitrary switching charges for Gulf and Pacific Coast ports which are basing points.

The most important supplement to the code is Regulation No. 1 regarding deductions allowed to jobbers. This regulation together with the form of jobber agreement is intended to clarify the status of jobbers.

Pacific Coast Jobbers

Commercial Resolution No. 3

On Aug. 29 the board of directors adopted a preamble and resolution establishing special terms for Pacific coast jobbers with respect to products produced at eastern plants.

The preamble states that whereas it is the custom of jobbers serving consumers in Pacific states to purchase for resale products produced at plants of members of the code located east of the Mississippi river similar to products produced in Pacific coast plants; that the time in transit for products shipped from the east may be more than 25 days; that it is in the interest of code members and of Pacific coast consumers that suitable stocks be available locally; and that the board deems it necessary to establish a special maximum rate of discount for early payment and a special maximum period of free credit.

The resolution reads:

"RESOLVED that the Board of Directors hereby establishes, pursuant to the provisions of Section 6 of Schedule E of the Code, a special maximum rate of discount for early payment and a special maximum period of free credit which may be allowed by members of the Code with respect to sales or contracts of products produced at plants located east of the Mississippi River similar to products produced at Pacific Coast plants to jobbers who purchase such products for resale and distribute them in Pacific Coast markets, as follows:

"*Special Maximum Rate of Discount for Early Payment*—½ of 1 per cent of the invoiced value of such products, if the invoice thereof shall be paid within 40 days from the date of such invoice;

"*Special Maximum Period of Free Credit*—60 days from the date of such invoice."

Woven Wire Fencing

Commercial Resolution No. 4

On Aug. 29 the board of directors adopted a preamble and resolution establishing special terms with respect to sales of woven wire fencing to certain classes of purchasers.

The preamble states that whereas woven wire fencing is used very largely by farmers who buy such fencing chiefly in the spring and autumn; that the problem of spreading production to cover seasonal distribution involves the stocking of such product either at the producing plants or on hand with the distributors; that it is inconvenient or impracticable for the members of the code to undertake at their respective plants all the stocking of such product required and on that account such members find it necessary to offer special inducements to distributors to place orders for and stock substantial quantities of such product in advance of the respective seasons for selling.

The resolution reads:

"Resolved that the board of directors hereby establishes, pursuant to the provisions of Section 6 of Schedule E of the Code, special maximum rates of discount for early payment and special maximum periods of free credit which may be allowed by members of the Code with respect to sales or contracts of sale of woven wire fencing in lots of 500 rods or more to or with jobbers, mail order houses, central offices of large farm bureaus and other dealers for resale, the rates of discount to apply only to the invoiced value of such fencing, as follows:

Spring Terms:

For shipments on and after Dec. 1, discount for cash:

4 % on or before Jan. 10
3½ % on or before Feb. 10
3 % on or before March 10
2½ % on or before April 10
2 % on or before May 10
Due net May 31.

Autumn Terms:

For shipments on and after June 1, discount for cash:

4 % on or before July 10
3½ % on or before Aug. 10
3 % on or before Sept. 10
2½ % on or before Oct. 10
2 % on or before Nov. 10
Due net Nov. 30.

Products in Indirect Export

Commercial Resolution No. 6

On Aug. 29 the board of directors adopted a preamble and resolution establishing allowances with respect to the sales of certain products in indirect export, as follows:

"WHEREAS, it is the custom of various purchasers of products to use such products in fabricating or manufacturing articles for export; and

"WHEREAS, the ability of such purchasers to compete successfully in the export markets often depends upon the price of products used by them in fabricating or manufacturing such articles; and

"WHEREAS it is in accordance with the purpose of the Code and in the interest of the members thereof to foster the exporting of articles fabricated or manufactured from such products;

"RESOLVED that the board of directors hereby establishes, pursuant to the provisions of Section 7 of Schedule E of the Code, allowances that may be made by members of the Code from the prices of sheets that such members shall sell or contract to sell to manufacturers of steel drums located in the Pacific Coast States for export trade within the meaning of the term "export trade" as it is used in the Export Trade Act and from the prices of plates, shapes and bars and tin plate such members shall sell or contract to sell for use by the purchasers thereof in the manufacture of other articles for such export trade which shall be the smallest allowances that respectively shall be adequate in order to enable such members of the Code to meet competitive conditions in the sale of such products, each such allowance to be promptly reported to the board of directors by the member of the Code which shall have made it; *provided, however*, that no such allowance shall be made until such fabricated or manufactured articles shall have been shipped in such export trade."

Switching Charges at Gulf and Pacific Ports

Commercial Resolution No. 7

On Aug. 29 the board of directors adopted a preamble and resolution

authorizing the use of an average arbitrary switching charge at Gulf and Pacific coast ports which are basing points, as follows:

"WHEREAS Section 4 of Schedule E of the Code provides, in substance, that, if the place of delivery of any product sold shall be at a basing point for such product, the delivered price of such product shall be not less than the sum of the published base price for such product and the published tariff switching charges to such place of delivery; and

"WHEREAS Gulf and Pacific coast ports are listed in Schedule F of the Code as basing points; and

"WHEREAS at such ports it is difficult to ascertain at the time of quoting prices for products at plants located east of the Mississippi river and to be shipped by water to such ports the precise switching charges which should be added in order to determine the delivered prices for such products; and

"WHEREAS the board deems it advisable in order to facilitate the transaction of business to authorize, until the board shall otherwise determine, the use of an average, in lieu of the actual, switching charge; and

"WHEREAS the board has been advised that 50c per ton, net or gross as the case may be, is a fair average of the actual switching charges now in effect within the switching areas of such ports as are listed in such Schedule F as basing points;

"RESOLVED that, for the purposes of the provisions of Section 4 of Schedule E of the Code, the requirement to add the appropriate switching charges to the base price of products in making deliveries thereof at Gulf or Pacific coast ports that are listed as basing points in Schedule F of the code shall be deemed to have been satisfied, until the board of directors shall otherwise determine, if in determining the delivered prices for such products at such ports, in lieu of the respective actual published tariff switching charges, members of the Code making shipments of products for delivery at such basing points shall use an arbitrary switching charge of 50 cents per ton, net or gross as the case may be."

Clarifies Status of Jobbers

Regulations under Section 4 of Schedule E of the Code of Fair Competition of the Iron and Steel Industry. Re Deductions Allowed to Jobbers

Regulations No. 1

The following regulations are prescribed by the Board of Directors of American Iron and Steel Institute under Section 4 of Schedule E of the "Code of Fair Competition of the Iron and Steel Industry" dated Aug. 17, 1933, with reference to deductions from the price of any product that may be allowed to jobbers:

1. Wherever used in these Regulations, unless the context shall otherwise clearly indicate, the terms which are defined in Article I of said Code and in Section 1 of Schedule E thereof shall have the respective meanings therein set forth.

2. For the purposes of Section 4 of Schedule E of the Code and of these Regulations, any person, firm, association or corporation shall be deemed to be a jobber in respect of any product or products, as the term "products" is defined in the Code, if

(*a*) he is (or in good faith is about to become) engaged in the business of purchasing such product or products for resale and of selling it or them in the United States without processing or fabricating it or them;

(*b*) he regularly owns and maintains in the United States a sufficient stock of such product or products to enable him to meet ordinary demands upon him or such product or products and as a rule purchases it or them in carload lots;

(*c*) at least 75 per cent of his annual sales of such product or products have been and are (or will be) made to one or more of the following named classes of purchasers: retail dealers, manufacturers who use annually substantial quantities of such product or products, contractors, public service corporations, oil producing and/or refining corporations, gas producing corporations, pipe line corporations and mining corporations; and

(*d*) he employs traveling salesmen who regularly call upon and solicit orders from one or more of the classes of purchasers named in the foregoing clause (*c*).

For the purpose of these Regulations, the terms "processing" and "fabricating" as used herein shall not include cutting to length or size, bending or, in the case of pipe, threading or coupling.

3. Pursuant to the provisions of Section 4 of Schedule E of the Code, before any member thereof shall allow any deduction from the price of any product to any jobber as permitted by the provisions of said Section, such member shall secure from such jobber an agreement substantially in the appropriate one of the three forms of agreement hereto annexed and marked Schedule 1, Schedule 2 and Schedule 3, respectively. Any such agreement may cover one or more products, and every such agreement shall state therein the product or products covered thereby.

4. Each member of the Code shall prepare and mail, postage prepaid, to the Secretary, for filing in his office, lists showing the respective names and addresses of the jobbers with whom it shall have made agreements as required by the provisions of the foregoing paragraph 3, and the kinds of products covered by them, respectively as follows:

(*a*) on or before the 5th day of October, 1933, a list showing the names and addresses of the jobbers with whom such member of the Code, prior to Oct. 1, 1933, made such agreements, and the kinds of products covered by them, respectively;

(*b*) on or before the 5th day of each month beginning with the month of November, 1933, a list showing the names and addresses of the jobbers with whom such members of the Code made such agreements during the preceding calendar month, and the kinds of products covered by them, respectively; and

(*c*) on or before Jan. 20, 1934, and thereafter on or before the 20th day of July and January in each year, a revised list showing the names and addresses of all the jobbers with whom, prior to the first day of July or January, as the case may be, such member of the Code had made such agreements that were then in effect, and the kinds of products covered by them, respectively.

5. Any jobber who shall violate any such agreement shall, for all purposes of the Code and of these Regulations, thereupon cease to be a jobber, unless and until reinstated as such by order of the Board of Directors

6. Notwithstanding the fact that any person, firm, association or corporation in any such agreement shall have made representation that such person, firm, association or corporation is a jobber within the meaning of the term "jobber" as it is defined in these Regulations, nevertheless the member of the Code which shall have made such agreement shall make reasonable inquiry for the purpose of determining that such representation was correct, and thereafter from time to time such member shall make like inquiry for the purpose of determining whether such person, firm, association or corporation is at the time a jobber within the meaning of that term as aforesaid.

Prescribed by the Board of Directors, Aug. 29, 1933.

[Form of Agreement under Section 4 of Schedule E of Steel Code to be used, if Jobber is a Corporation.]

SCHEDULE 1.

AGREEMENT DATED ...., 193...., BETWEEN ....., A CORPORATION OF THE STATE OF ..... (HEREINAFTER CALLED THE SELLER) AND .... A CORPORATION OF THE STATE OF ..... AND HAVING ITS PRINCIPAL PLACE OF BUSINESS AT ..... (HEREINAFTER CALLED THE BUYER).

WHEREAS the Seller is a member of the Code of Fair Competition of the

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Many Codes in Filing, Hearing And Final Approval Stages

AT LEAST a dozen industries closely allied with the iron and steel industry are in the process of submitting or negotiating codes of fair competition with the national recovery administration.

The Institute of Scrap Iron and Steel Inc. has filed a revised code for its industry. The hearing on the code for the steel casting industry was held Thursday, Sept. 7. A code for the iron ore mining industry for the Lake Superior region was filed Sept. 5 by the Lake Superior Iron Ore association. A code for the bolt, nut and rivet industry was presented to NRA on Aug. 30. A code for the machine tool industry was submitted by the National Tool Builders association on Monday, Aug. 28. Following many weeks of negotiation, General Johnson has prepared a code for the bituminous coal industry. Operators were given until 6 p.m. Saturday, Sept. 9 to file objections. The cast iron soil pipe code on Friday was before President Roosevelt for approval and signature.

Summaries of the codes and explanations of their present status are presented herewith:

Iron Ore

A code of fair competition for the iron ore mining industry of the Lake Superior region was filed with NRA Sept. 5 by the Lake Superior Iron Ore association.

The "Lake Superior region" is defined as the iron ore mining districts in the states of Minnesota, Michigan and Wisconsin.

Section II provides that the minimum wage that shall be paid by any employer for common labor shall be 40 cents per hour. "Except in the case of executives, those employed in advisory capacities or in technical work and their respective staffs and those employed in emergency work, or where the safety of the men or the preservation of the property, necessitates temporarily longer hours, no employer shall cause or permit any employe to work more than eight hours in any one day or more than an average of 40 hours per week in any calendar month, so long as employes qualified for the work required shall be available in the respective localities where such work shall be required."

Section III provides that no employer shall employ any person under 16 years of age.

Section IV provides for the administration of the code under the direction of a management board consisting of five persons to be elected on written vote of the subscribers of the code held within two weeks after its approval. The board shall hold office until Oct. 1, 1934 or until their successors are chosen. Annual elections will be held thereafter.

Section V provides for the reporting to the management board by companies a statement showing actual hours worked by employes.

Section VI is a re-statement of Section 7a of NIRA in regard to collective bargaining.

Section VII states that this code "is not designed to promote monopolies and shall not be availed of for that purpose."

Scrap Iron and Steel

A revised code for the scrap iron and steel industry was sent to Washington, Sept. 4 incorporating suggestions and amendments made by the deputy administrator in charge of the Code. It is expected that public hearing on the Code will be announced shortly. It may be preceded by a preliminary conference between a committee of the Institute of Scrap Iron & Steel, Inc., and representatives of NRA industrial, labor and consumer boards, with the deputy administrator.

The question of reciprocal and direct deals between consumers and producers of scrap is being studied by NRA, on the basis of a brief filed by the scrap institute and on the basis of evidence given at the public hearing on the iron and steel code by General Director Schwartz. The Institute of Scrap Iron & Steel has been advised, as the next step, to bring the matter before the board of directors of the American Iron and Steel institute.

Bituminous Coal

Barring serious conflict, a pact for the bituminous coal industry may be signed by President Roosevelt by the time this issue appears. On Thursday, after many weeks of negotiations, Administrator Johnson presented a code to the industry as the government's substitute for the 29 codes previously submitted by the various factions of coal operators. The coal producers have been given until 6 p.m. Sept. 9 to file objections to the proffered code.

The new code provides that no employe shall be employed in excess of 32 hours in any calendar week during a consecutive period of 26 weeks in any 12-month period, nor in excess of 40 hours in any calendar week during the other 26 consecutive weeks of such 12 month period; provided however, that any employer may elect to operate any mine on a schedule of employment of not to exceed 36 hours per week throughout the 12-month period. No employe shall be required to work more than eight hours in any one day. Certain exceptions to the foregoing are made for emergencies and for supervisors, clerks, technicians, etc.

Schedule A lists 15 wage districts with minimum rates for inside labor ranging from 37½ cents per hour or $3.00 per day in Alabama, Georgia and southern Tennessee, to 70⅜ cents per hour or $5.63 per day in the Montana district. The minimum for district A, comprising Pennsylvania, Ohio, the Panhandle district of West Virginia, and Michigan is 57½ cents per hour or $4.60 per day. In the Illinois district it is 62½ cents per hour or $5.00 per day.

Steel Castings

Frederick A. Lorenz, of Chicago, member of the board of directors of the Steel Founders Society of America, presenting the steel castings industry's code at a hearing before Deputy Administrator H. O. King of NRA last Thursday, said the industry touched bottom in the depression of 1932 when production fell to 10 per cent of capacity, but that business is now definitely on the mend with recent orders showing an increased demand of more than 20 per cent.

Mr. Lorenz stated that the Steel Foundry Society of America has functioned continuously during the past 31 years. Its membership comprises 117 company members whose aggregate monthly capacity is 114,943 net tons or about 80 per cent of the total active capacity of the industry. The capital invested by the industry is approximately $240,000,000 in normal times. The industry employs about 43,000 persons and its payroll is estimated at $85,000,000 annually.

Mr. Lorenz told the Deputy that the hours of labor, rates of pay and other conditions of employment provided in the steel casting code correspond closely to the provisions in

the code already approved for the iron and steel industry.

The country is divided into 21 districts for wage purposes with minimum pay ranging from 25 cents an hour in the south to 40 cents in the Pittsburgh-Wheeling, Chicago and St. Louis districts.

The average working week, he said, is to be 40 hours, with 48 hours allowed in peak periods. No one under 16 years old is to be employed by the industry in any capacity, and no one under 18 in any hazardous work. Aged and partially infirm employees may be kept on the payroll at not less than 80 per cent of the minimum wages.

Chester A. Sample, of the metal trades department of the American Federation of Labor assailed the proposed hour and wage schedules stating that they offered no improvement over existing conditions.

John P. Frey, appearing for the Labor Advisory Board, said that since its submission to NRA a new provision has been added for labor similar to that in the automobile code, giving the employers the right to select, retain and advance workers, on the basis of individual merit without regard to their membership or nor membership in any labor organization. He said that this new amendment represents either an attempt to interpret or to modify the terms of the Recovery Act relating to collective bargaining. He opposed this.

Carroll Burton, president of the Lorain Steel Company, in a letter suggested that companies like his own, which are under the iron and steel code but also do steel casting, be given the option of deciding which code they wish to operate under.

The Alloys Casting association, which has filed its own code with NRA offered an amendment, to make is clear that nickel and chromium casting are not included in the steel casting code. Mr. Lorenz accepted the amendment.

As the result of changes made a few hours before the hearing in the definitions section of the code objections that had been lodged with the Administrator were withdrawn by a number of firms, including the Baldwin Locomotive Works, American Locomotive Co., General Steel Castings Co., and the Machinery and Allied Products Institute.

Structural Steel Fabrication

A code of fair practice for the structural steel fabricating industry was filed with NRA Thursday, Sept. 7, by the American Institute of Steel Construction. A hearing probably will be scheduled within ten days or two weeks.

The code fixes a 40-hour week as the maximum average in any six-months period. No employe is permitted to work over 48 hours or over six days in any one week.

The minimum rates for common labor in fabricating plants range from 27 cents in certain southern sections to 40 cents in certain localities in the north. Seven districts are provided, each comprising certain towns and localities. Wages do not vary more than 5 cents in any of the seven districts.

The minimum wage rate for common labor in erection work ranges from 35 cents in the south to 55 cents and 60 cents in most of the northern cities. Bridgemen will be paid from 75 cents per hour in the south to $1.00 and $1.10 in the majority of the other sections. The highest rate for bridgemen is in New York city where the minimum wage is $1.45 per hour.

The code provides that no member shall initiate construction of new fabricating equipment. However, no member shall be prohibited from modernizing or changing the location of plants for increasing efficiency. The code deals with prices and terms of payment in great detail. Under unfair practices, 19 prohibitions are enumerated. One article of the code is devoted to liquidated damages, while others deal with administration of the code, membership, and reports and statistics.

Machine Tools

A code of fair competition for the machine tool industry was filed with NIRA on Monday, Aug. 28.

In Article I of the code the term "machine tool industry" is intended to include all those engaged in the manufacture for sale of machine tools and forging machinery and parts thereof.

The term "machine tools" includes all power driven complete metal working machines, not portable by hand, having one or more tool and work holding devices used for progressively removing metal in the forms of chips.

The term "forging machinery" includes all hot and cold forging machinery excepting hydraulic machinery.

Under employment the code restates the familiar collective bargaining clauses of Section 7a of NIRA with the following addition:

"It is also declared, that:

"Nothing in this code shall prevent the selection, retention or advancement of employes on the basis of their individual merit, without regard to their affiliation or nonaffiliation with any labor organization, or with any other lawful organization.

"Nothing in this code shall prevent any individual employe from bargaining individually with his employer, if both so desire.

"The industry has recognized the right of the employes of any employer, to bargain collectively with such employer, through representatives chosen by such employes from among themselves, without interference, coercion, or restraint from their employer or from anyone.

"These principles, long recognized and practiced in the industry, are in the judgment of employers, in the interest of the employes, and in the opinion of the employers should be maintained and protected."

Provision is made for a minimum wage of 35 cents per hour, "unless the rate per hour for the same class of labor on July 15, 1929 was less than 35 cents in which case the rate per hour paid shall not be less than the rate per hour paid on July 15, 1929; and provides that in no event shall the rate per hour paid be less than 30 cents."

Bolt, Nut and Rivet

A code of fair competition for the bolt, nut and rivet industry was submitted to NRA on Aug. 30 by the American Institute of Bolt, Nut and Rivet Manufacturers. The code is expected to be signed by the majority of the approximately 100 producers of these products. The executive committee will meet in New York on Sept. 14 to discuss presentation of the code in Washington. It is believed that a hearing date will be announced prior to that meeting.

Section 2 of Article IV provides that on the effective date of the code (10 days after approval by the President) no member shall permit any employe "excepting executives, those in supervisory capacities and in technical work, salesmen, and those in emergency work, to work at an average in excess of 40 hours in any six month period or to work more than 48 hours or more than six days in any one week."

Section 3 provides for minimum wages as stated in Schedule B. Schedule B provides for 21 wage districts identical with those in the iron and steel code. The minimum wages in each of these districts, are identical with the minimums established in the steel code.

Section 5 provides that no person under 16 years of age shall be em-

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WINDOWS OF WASHINGTON

Letdown Follows 'Key' Codes

• • •

NRA Better than Alternative

• • •

May Simplify Track Material

WASHINGTON

WHEN General Johnson's NRA headquarters closed from 1 p.m. the Saturday before Labor day until last Tuesday morning it was the first break in a continuous performance, including Sundays, since the recovery act was signed on June 16.

This break appears to have inaugurated a period of calm—comparatively speaking. True, a number of important codes including those of structural steel fabricators, the foundry groups, reinforcing bar warehouses, the machinery and allied products industry and general contractors remain to be heard or approved, but the letdown is perceptible.

The influx of businessmen to Washington has lessened; crowds thronging NRA headquarters have thinned out; the pressure on the NRA staff has eased; there is time now to put proposed codes through the government printing office instead of mimeographing them; there even is talk that some of the emergency machinery may be demobilized shortly.

If the recovery program were a steel sheet, mill men would say it was being normalized. It is evident that the srains set up in codifying "key" industries are being relieved; the grain structure of the new forms into which economic and social forces have been rolled is relaxing.

It requires no etching, however, to detect the grain flow. Organized labor, revitalized by the now-famous section 7a, is baring its teeth. General Johnson, under less pressure, tends to become more liberal toward industry. And industry, coming out of its fright over the open shop issue, is awakening to the possibilities for internal reorganization and housecleaning.

THIS letdown, which is accompanied by some measure of apprehension, confirms General Johnson's contention that the next move is up to consumers. The work of codifying industry being assured, the success of the blue eagle campaign—even General Johnson now calls it an eagle instead of a hawk—has become vital.

Washington increasingly believes that industry will gain enormously through codification, provided, of course, it can maintain its open shop position. There are numerous evidences that, now that some of the major codes are in effect, their possibilities are just being discerned. One of these industries is steel, the report coming to Washington that the enthusiasm of the two leading producers is intensifying.

A surprising amount of talk is to the effect that when the 2-year period for the waiving of the antitrust laws expires, industry will have become so reorganized on a new cooperative and regenerated basis that prolongation of this phase of NRA will be sought. So far as industry is concerned, the "new deal" appears to be a reality.

But the verdict is not yet in on the blue eagle campaign. Its fate rests with the women of the nation, and the touchstone is prices.

Since women do 85 per cent of purchasing, excluding, of course, raw materials for industry, their reaction will be decisive. Very shortly the enthusiasm of women, fanned by NRA ballyhoo, will collide with rising prices and this will supply the test.

SO FAR as opinion within Washington is concerned, and frequently this is out of step with the nation, it is overwhelmingly negative on the blue eagle phase of NRA. So widespread have the eagles been distributed that the ferreting out of chiselers will require as much effort as the maintenance of enthusiasm. General Johnson reiterates in every radio address that the key to the whole recovery program rests with the consumer.

The past few days letters of complaint at the rate of 1800 daily have been received by NRA. The complaint bureau has been set up to handle only 100 a day, but this will be greatly enlarged. Within 10 days General Johnson expects to take a census on re-employment, probably using the meter readers of public utilities because they reach practically every home.

Reports reaching Washington show a wide variance of opinion concerning NRA. The federal government and a number of states and cities are taking action not to buy any Fords until Mr. Ford has taken out his blue eagle. One letter from the Middle West tells of a man who switched a new car purchase from a Ford to a competing make for fear the boycott campaign might reach the proportion of small boys stoning Fords.

But blase Washington is skeptical, as usual. Typical of this attitude is the quip of a famous humorist that if Hoover made monkeys out of us, Roosevelt is making trees for us to climb.

It is admitted, however, that the President has frankly stated that NRA is an experiment, and that if it fails another plan will be tried. Reports on current business from all parts of the country are such as to make Washington secretly hope that NRA will work for fear of something more radical. These reports are discouraging.

What the country needs, Washington maintains, is a 10-point rise in the stock market.

ALTHOUGH not quite an offset to the less tense situation in NRA, the public works administration has become galvanized by crit-

icism of the delay in translating projects into jobs and materials, and steps have been taken that may lead to some railroad buying.

Secretary of the Interior Ickes, director of PWA, has imposed a 30-day deadline for the completion of details and offering of a contract after preliminary approval has been granted on nonfederal work.

Federal work, the least part of the public works program, is proceeding relatively more rapidly. Recommendations for 702 post offices, costing $62,000,000, were submitted to the President for approval immediately on his return to the White House last Tuesday.

The latest report on the federal highway program, that for Sept. 5, shows that only 123 projects, employing 7624 persons actually were under way. But 1119 projects costing $74,513,103 and estimated to employ 89,355 persons are approved.

Regarded as preliminary to any purchasing by the railroads, the section of purchases headed by R. H. Lockwood, set up by Railroad Coordinator Eastman, is pushing a program of standardization and elimination of waste in the purchase and application of railroad materials, equipment and supplies.

At the call of Earl Stimson, chief engineer of maintenance of the Baltimore & Ohio railroad, the rail committee of the American Railroad Engineering association will meet this month to consider standardization of standard rails to four weights.

Simplification of tie plates to a few standard designs is a probability.

The substitution of cast steel side frames for arch bar trusses is being urged on the railroad administration.

The design of a new type of freight car, to be considerably lighter than any now in service for a given capacity, is progressing. The simplification of such car parts as ends, roofs, draft gear and locking devices is under consideration.

At the moment, an impasse exists between the railroads and PWA, which has authority under the recovery act to finance new equipment. The railroads are not applying for funds, for one thing having had an unhappy experience in government loans and for another not needing much equipment.

But PWA is not inclined to entreat the railroads to solicit loans and is waiting for the latter to come to it.

There are a good many in Washington who believe that the railroads will make a definite contribution to recovery in the way of heavier equipment buying and material purchases, but this probably will not benefit the steel industry before 1934.

LEADING in point of steel tonnage engendered by the recovery program is the $400,000,000 federal highway undertaking.

Based upon a theoretical program of $100,000,000, the estimate is that this $400,000,000 program will require 394,000 tons of steel of all kinds including reinforcing bars, mesh, structural steel for bridges, culverts, wire and guard materials.

This estimate is probably high because as plans mature an unexpectedly large per cent of funds is being diverted into secondary road construction where hand labor more than material is a factor. Pennsylvania, for example, is expending the bulk of its $40,000,000 on side roads.

The $50,000,000 additional for forest and park roads will mean small tonnages for bridges and culverts, but comparatively little bars or mesh.

The Triborough bridge completion loan for New York entails 115,000 tons of steel, mostly structurals. The New York-Weehawken tunnel specification is chiefly 50,000 tons of cast iron segments.

Some round lots of sheet piling are about to be purchased for river and harbor work, for which $70,000,000 is available. Costly as was the recent storm on the Atlantic coast in point of lives and property damage, it proved the superiority of piling over other forms of protection.

For some inland projects, the piling will be purchased direct by the government, thus enabling contractors of lesser financial standing to compete for the work.

Considerable wire for constructing mattresses will be needed for flood control work on the lower Mississippi river, for which $16,000,000 has been allotted.

In addition to the $238,000,000 naval construction program, some $9,000,000 has been appropriated for the coast guard, for six cutters and miscellaneous harbor craft, requiring perhaps 6000 to 7000 tons of steel, mostly plates.

STRUCTURAL steel fabricators, as represented by the American Institute of Steel Construction, are objecting to provisions in both the general contractors' code, on which hearings were held last week, and on the road builders code, about to be [illegible], which might delay settlements for steel.

Both codes, in effect, provide that the general contractor shall pay subcontractors in the same ratio and at approximately the same times that he himself is paid by the owner.

In other words, although the steel frame work of the structure might be completed six months before the final payment is made by the owner to the general contractor, part of the cost of the steelwork would be left hanging until the end of the job.

However, fabricators are in full accord with the clause in the contractors' code which is designed to end bid peddling. It will be possible to limit bidders to six, with duplicate bids to be filed with a neutral party to insure an equal chance for all six. Awards must be made within 20 days.

HARD as it is to believe at times, General Johnson may yet prove to be the bulwark of industry against organized labor.

So far as the general's personal record is concerned, it will be found that he has consistently stood on the wording of Section 7a. Organized labor did win an enormous victory in congress in putting over the wording of this section; it will be seen eventually that the general in standing on the letter of the law has prevented organized labor from making a similar runaway of NRA.

The only deviation is the automobile code, and it is conceded by General Johnson that "in an unguarded moment" he promised the inclusion of a phrase which could be used by the industry to neutralize inflammatory statements of labor organizers. But in no code approved in the future, and in no revision of any present code will a similar qualification be permitted, he declares flatly.

Speaking at the Century of Progress exposition in Chicago Labor day, General Johnson went further than ever before in a liberal interpretation of Section 7a. He said:

"**But employers are not compelled to agree on any particular scale of wages or conditions of employment merely because they are bargaining with self-chosen representatives of organized workers. And no employer is denied the right to bargain individually with any worker if the worker so chooses."

Speaking at Akron, O., Labor day, William Green, president of the American Federation of Labor, threatened court action to enforce collective bargaining, especially in view of the praise of the chamber of commerce of the United States for the so-called merit clause of the automobile code.

However, Washington is convinced that General Johnson is speaking authoritatively in laying down the policy that the automobile code provision was an exception, and it believes that organized labor is the last to want the recovery act scrutinized too carefully by any court. A test case, which NRA dreads, may arise in the case of a New York department store. It is being gossiped in Washington that when General Johnson leaves NRA, which is scheduled after completion of its final organization, he will become czar of some industry.

THERE is some reason for believing that the vulnerable spot in steel labor which the American Federation will attempt to capitalize is the differentials of various classes of skilled labor over the bases which

have been specified in the steel code.

Federation officials mince no words in condemning these bases as too low, but since they are part of what General Johnson terms "the law merchant" of the industry they are immune for the present. But there is nothing to prevent demands from skilled workers for a larger spread over the common labor base.

The broad claim of the American Federation is that it has gained a million members since NRA came into being. This would be roughly one half the number which NRA officials state has been re-employed.

Charters are being issued by 108 national and international unions affiliated with the American Federation. Since July 3, a total of 394 federal charters has been issued, these charters in a broad sense being a vertical union embracing all employes of a plant.

There appears to be considerable elation among federation officials at Washington that the Amalgamated Association of Iron, Steel and Tin Workers, which has organized 35 new lodges, has made an entry at Weirton, W. Va.

Speaking at Pittsburgh Labor day, Frank Morrison, secretary of the American Federation, described this as the third great wave of unionization to sweep over the country. The first was in 1901 to 1904, when 800,000 members were added. The second was 1916 to 1920, under the spell of the World war, resulting in an increase of 2,000,000 members; the third, under way, is claimed to have netted 1,000,000.

The American Federation may have a way with congress, but not with federal employes. At Kansas City last week the question of reaffiliating with the federation was brought up at the convention of the National Federation of Federal Employes.

The report—which was adopted—against returning to the federation maintained that nothing could be gained "as long as the present hopelessly double-dealing, unscrupulous and reactionary leadership of the federation is maintained." It was greeted with cheers.

If orthodox union hours obtained in Washington, the recovery program would be at least one-third behind schedule. As previously related, NRA headquarters were not closed from June 16 to Sept. 2.

GENERAL JOHNSON and Henry Ford are not so far apart as newspaper reports indicate, and chances are the present situation will be bridged satisfactorily.

General Johnson makes it clear that so long as the Ford Motor Co. meets the minimum requirements of the code there is no cause for action. This is qualified, however, by this condition: The blue eagle cannot be used by Mr. Ford unless he signs the code.

The automobile code governs the industry, of which Mr. Ford is an important part. In case any other automobile manufacturer complains that the Ford company is not meeting the requirements of the code or is engaging in an unfair method of competition, then the demand can be made for proof to the contrary. This would be the only access of the industry to Mr. Ford's books.

General Johnson makes it plain that the objective of NRA is to increase wages and employment. And there will be no quarrel that can be avoided.

DONALD R. RICHBERG, K. M. Simpson and Dr. Alexander Sachs will continue to be the NRA representatives on the American Iron and Steel institute board to consider prices, with the qualification that Doctor Sachs may resign to reenter private business. . . . John W. O'Leary, president, Machinery and Allied Products institute, is protesting in all codes any clauses that would attempt to prevent the purchase of new machinery. . . . General Johnson has again warned that the implication that any individual group has influence or can fix contracts with NRA "is bunk." . . . F. B. Ernst, vice president, American Steel Foundries, Chicago, and Keith Williams, Buffalo, are advisers for the steel casting industry code.

August Ingots Off; 16% Below July

PRODUCTION of steel ingots in August declined 16 per cent from the high mark of July, but in spite of this it was higher than any month since March, 1931, except for July, 1933, according to figures compiled by the American Iron and Steel institute.

Average daily output for August was 107,430 gross tons, compared with 128,152 gross tons for July and 31,360 gross tons for August, 1932. Per cent of operation in August was 49.42, compared with 58.95 in July, 1933, and 14.50 in August, 1932.

Average daily output for eight months of 1933 was 72,916 gross tons, compared with 44,955 gross tons for the first eight months of 1932. The average rate of operation for eight months of 1933 was 33.54, compared with 20.79 for the corresponding period of 1932.

Total calculated production for eight months of 1933 was 15,093,613 gross tons, compared with 9,350,662 gross tons for the corresponding months of 1932 and 13,322,833 gross tons for all of 1932. Thus total production in 1933, to Aug. 31, exceeds output for the entire preceding year by nearly 2,000,000 tons.

With an upturn probable after September it seems likely the year will show a good increase over several preceding years in total production.

Steel Ingot Production — 1932-33

93.71 Per Cent of Industry Reporting

Gross Tons

1932	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Per cent operation
Jan.	1,230,907	160,633	1,391,540	1,484,991	26	57,115	26.41
Feb.	1,230,970	157,067	1,388,037	1,481,252	25	59,250	27.40
Mar.	1,149,193	193,944	1,343,137	1,433,337	27	53,087	24.55
Apr.	1,036,163	144,197	1,180,360	1,259,629	26	48,447	22.40
May	950,838	103,593	1,054,431	1,125,243	26	43,279	20.01
June	755,068	100,249	855,317	912,757	26	35,106	16.23
July	653,039	102,916	755,955	806,722	25	32,269	14.92
Aug.	696,122	97,323	793,445	846,730	27	31,360	14.50
8 Mos.	7,702,300	1,059,922	8,762,222	9,350,662	208	44,955	20.79
Sept.	804,470	124,970	929,440	991,858	26	38,148	17.64
Oct.	885,773	132,876	1,018,649	1,087,058	26	41,810	19.33
Nov.	838,419	128,844	967,263	1,032,221	26	39,701	18.36
Dec.	724,917	81,932	806,849	861,034	26	33,117	15.31
Total	10,955,879	1,528,544	12,484,423	13,322,833	312	42,701	19.75
1933	**96.57 Per Cent of Industry Reporting**						
Jan.	885,743	109,000	994,743	1,030,075	26	39,618	18.23
Feb.	922,806	126,781	1,049,587	1,086,867	24	45,286	20.83
Mar.	784,168	94,509	878,677	909,886	27	33,699	15.50
Apr.	1,180,893	135,217	1,316,110	1,362,856	25	54,514	25.08
May	1,716,482	216,841	1,933,323	2,001,991	27	74,148	34.11
June	2,211,657	296,765	2,508,422	2,597,517	26	99,904	45.96
July	2,738,083	355,836	3,093,919	3,203,810	25	128,152	58.95
Aug.	2,430,750	370,370	2,801,120	2,900,611	27	107,430	49.42
8 Mos.	12,870,582	1,705,319	14,575,901	15,093,613	207	72,916	33.54

Figures exclude crucible and electric ingots. Operating percentages for 1932 are based on 67,473,630 gross tons annual capacity as of Dec. 31, 1931; for 1933, on 67,386,130 gross tons annual capacity as of Dec. 31, 1932.

Steel Rate Now Is 42%; Decline Slows

BUFFALO steel mills by rising 7 points to 48 per cent and New England and Detroit mills by holding at 85 and 55 per cent, respectively, tempered the decline in steelmaking last week. With losses in other districts ranging from 1 to 17 per cent, the national average for the week ended Sept. 9 was off 3 points to 42 per cent. Details for various districts follow:

Pittsburgh

Steel production here confirmed the anticipated decline of 1 point for the week and closed at 35 per cent. For this week, there appears little in prospect to revise the figure upward. The plants of one leading producer were at 34 per cent through the week, but the operations of an independent at 40 per cent raised the general average somewhat. There continue to be 19 out of 53 blast furnaces operated by steelworks in blast here. Eleven are stacks of United States Steel Corp. subsidiary plants, six are Jones & Laughlin furnaces and one each is active at plants of the Pittsburgh Steel and Pittsburgh Crucible Steel Co.

Chicago

Steelmaking operations declined 1 point to 45 per cent the past week, while blast furnace operations were unchanged. Eleven of 36 steelworks stacks continue in blast. With new business showing more resistance to the declining trend previously in effect, producers anticipate a slower recession in operations, if not some recovery, by October.

Cleveland

Steelworks operations in the Cleveland-Lorain district for the week ended Sept. 9 averaged 56 per cent, down 3 points from the preceding week. Corrigan, McKinney Steel Co. reduced from 9 to 7 open hearths Thursday, and National Tube Co., Lorain, stepped down from 10 to 8. Otis increased its active units from 4 to 6, as sheet and strip output increased.

Birmingham

A slight downward change in steelmaking operations, based on ingot production is noted, the estimate now being 50 per cent.

Wheeling

Steel ingot production in this district was off 5 points last week to 75 per cent, with curtailment in the open-hearth plant of one leading producer outstanding. Twenty-four and 25 open hearths, alternately, are active in the district.

Buffalo

Buffalo district operations rose 7 points during the past week to 48 per cent, and promised to hold there this present week. The lighting of three additional open hearths at Bethlehem's Lackawanna plant brought production there up substantially, while other works maintained previous output. The equivalent of 18 open hearths was in production shortly after Labor day and all were scheduled to operate this week.

New England

Steelmaking operations in this district will advance 11 points to 96 per cent this week, two plants scheduling to operate at 100 per cent and a third at 90. In the week ended last Saturday the rate held at 85 per cent, as in the two preceding weeks.

Youngstown

Reflecting a general easiness, steel production here declined 7 points to 45 per cent in the week ended Sept. 9. Little change is evident for this week.

Eastern Pennsylvania

Steel production in this district was unchanged last week at 37 per cent. One producer was operating 39 open-hearth furnaces; other interests were melting in 23 out of a total of 71 open hearths.

Operating Rate of the Steel Industry, by Weeks

All figures except monthly open-hearth and bessemer totals of American Iron and Steel institute are percentages, based on reports from Pittsburgh, Chicago, Youngstown, eastern Pennsylvania, Cleveland, Birmingham, Buffalo, Wheeling, New England, St. Louis, Lorain, Detroit districts. Weeks end Saturday. STEEL's weekly estimates take into account only actual available capacity, which is less than Institute's total.

1932	1st Week	2nd Week	3rd Week	4th Week	5th Week	STEEL's Average	Institute's Monthly Total tons	Institute's Monthly Average
Jan.....	22	25	26	27	28.5	25.7	1,484,991	26.41
Feb.....	28.5	27	25	25	....	26.4	1,481,253	27.40
March....	25	25.5	24.5	23	....	24.5	1,433,337	24.55
April.....	23	22	22	23	24	22.8	1,259,629	22.40
May.....	24	24	25.5	23	....	24.1	1,125,243	20.01
June.....	21	17	17	17	....	18.0	912,757	16.23
July.....	14.5	12	15.5	16.5	16.5	15.0	806,722	14.92
Aug.....	14.5	14.5	15.5	14.5	....	14.7	846,730	14.50
Sept.....	13.5	15.5	15	17	....	15.3	991,858	17.64
Oct.....	18	19	19.5	19.5	19.5	19.1	1,087,058	19.33
Nov.....	21	21	19	17.5	....	19.6	1,032,221	18.36
Dec.....	16	15	14	12	13	14.0	861,034	15.31
1933								
Jan.....	15.5	17	18	19	....	17.4	1,030,075	18.23
Feb.....	19	19	19	17	....	18.5	1,086,867	20.83
March....	15	13.5	15	14	15.5	14.6	909,886	15.50
April.....	17.5	20.5	25	29	....	23.0	1,362,856	25.08
May.....	33	36	40	43	....	38.0	2,001,991	34.11
June.....	47	48	49	51	54	49.8	2,597,517	45.96
July.....	55	57	57	55	....	55.8	3,203,810	58.95
August....	54	54	51	48	45	52.9	2,900,611	49.42
Sept.....	42	..	..	..	....	....	.....	.....

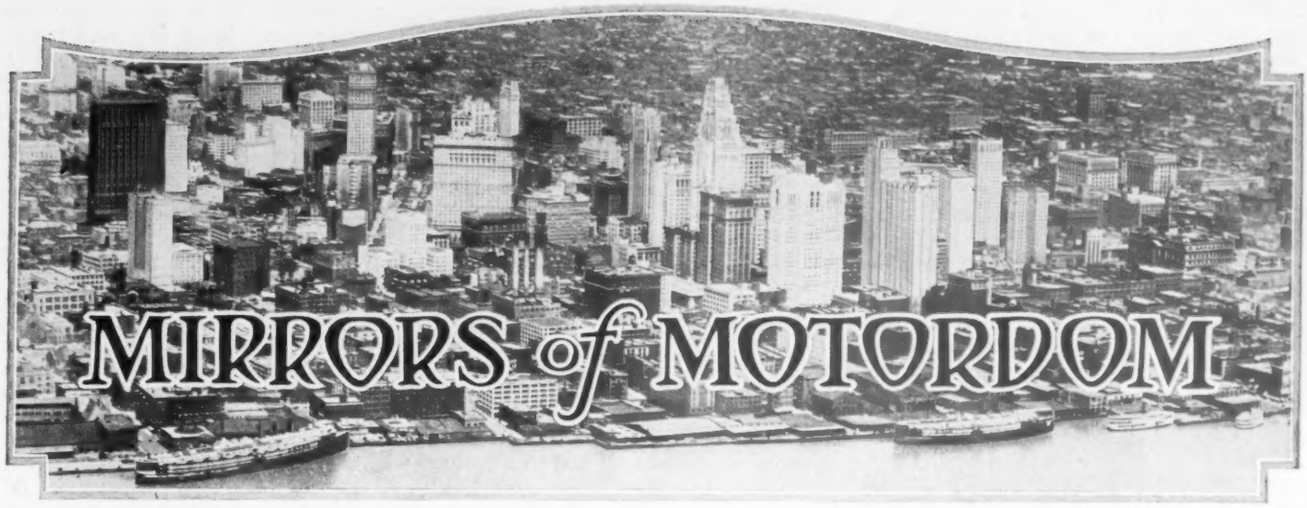
Pig Iron Boosts Gain Over July

COMPLETE and final returns from blast furnaces in the United States revealed actual production of coke pig iron in August to be only insignificantly higher than the compilation published in STEEL last week. The preliminary figures had involved estimation by producers of output for the last one or two days of the month.

The actual average daily rate for August was 59,137 gross tons, which, compared with the 58,108 tons of July, was an increase of 1029 tons, or 1.7 per cent. Total production was 1,833,265 tons, a gain of 31,920 tons, or 1.7 per cent, over the 1,801,345 tons of the preceding month. Merchant iron amounted to 251,952 tons and nonmerchant or steelworks iron to 1,581,313 tons.

For the eight months ended in August, output has aggregated 8,079,360 tons, against 6,262,847 tons in the corresponding period of 1932.

As previously reported, 98 blast furnaces were in operation on Aug. 31, as compared with 105 on July 31. During the month, 2 steelworks stacks were blown in and 11 were blown out or banked, with a net loss of 9 for this class. Of the merchant class, 3 stacks resumed operations and only 1 went out, with a net loss of 2 stacks.



Emerge from Code Confusion

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GMC Changes To Be Minor

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Anticipate Lighter Frames

DETROIT

PROUD and glad to do our part"—so Chevrolet advertised last week in all the nation's newspapers, regarding its attitude to NRA. Thus was Ford's aloofness given a shade more than an inferential slap. The blue eagle hovered over River Rouge but it did not settle.

Chevrolet capitalized to no uncertain extent by seizing on the Ford attitude, an attitude that left observers bewildered as to causes, ethics and outcome. Chevrolet recited that 12,000 men had been put back to work in its plants, that wages had been raised twice, that 37½ hours weekly were being worked, and that over the depression years a "number never less than 90 per cent of the 1929 high of 33,000 men had been kept at work 11 months of the year, building up parts' stocks in lean months, etc."

State embargoes and inestimable embargoes on Ford Motor products followed the failure of Ford to break his silence. Whatever the ultimate outcome, Ford will have to regain some measure of recently-lost favor to play his role in "Wings over Dearborn" to a smashing climax. The first act is nearly over but there is still time to win the critics to a favorable press notice or two.

Otherwise, motordom is emerging from the smoke of code confusion, is more smoothly operating under its provisions, but production assemblies of motorcars should be rather definitely on the wane by the close of September.

New steel prices under the steel code have sent buyers here scurrying to cover. Third quarter contracts that many possess still are valid but they have only the remainder of this month to specify against them. Consequently, some of them have been seeking to take out as much material as they can possibly get.

It is generally conceded that the steel Chrysler recently inquired for is far in excess of its normal September needs. Inquiries for thousands of tons of sheets, bars and other steels were circulated by Chrysler but most steel producers at this stage are not willing to load themselves up with a lot of low-priced business.

Incidentally, the complaints of General Motors and Chrysler on the recent hearings of the steel code before it was approved, were promptly quashed. Uniform delivered prices on steel were the target of these motormakers but unfortunately for them they practice the automobile business on the same basis. Even more so, when one considers the freight extra added to the base price of every new automobile.

CHEVROLET will not be swinging over into its 1934 models before late in October. In the meantime, its body division has been ordering some trial tonnages of sheets in new sizes. Certain body panel sizes show the 1934 car will be wider and longer. However, word that many of the body draws will be similar and the fact that dies for many of the body stampings will be unchanged suggest few departures from the contour of the present body.

On the coming Chevrolet fenders, for instance, an experimental order for 7-inch wider sheets was recently placed. The sheets are 48 inches wide, instead of 41 inches as they are now for the same part. These sheets are being experimented with for a deeper fender-skirt draw, inclusion of more of the running board in the fender part, and possible stamping or drawing of the front headlamps from within the fender itself.

Pontiac has designated October as the assembly end on its present series, though it must not be inferred that any great changes will feature the 1934 model. As previously recorded in these columns the 1934 Pontiac will be revised very little. This knowledge has sustained early fall sales in this unit.

After Labor day last week, Pontiac went on its reduced September schedule. Assemblies were cut down from five, to three and four days weekly, and will continue so the balance of this month. Few more than 5000 cars at Pontiac will be made in September.

Incidentally, it will be interesting to speculate on whether the 1934 Pontiac will be a "strip sheet" car. Pontiac is the only present model even to difficult draws, made of strip steel throughout, the product of the continuous mill. All others have some sheets along with strip in their makeup.

Buick held up its tool and die program through most of August while various uncertainties were being cleared up. Since, releases have come through. Expert tool and die men have been hired in some volume at Flint, Mich., being told that steady employment is assured for the balance of the year.

A tentative schedule at Buick calls for 14,000 of the new models to be assembled in October. Reports credit Oldsmobile with figuring on a batch of 17,000 for initial lot of its 1934 cars. These should begin to be run off in October, probably will take up that General Motors division for the balance of the year.

THE independent wheel suspension idea is spreading. It promises to be the leading departure of 1934 automobiles over their 1933 predecessors. The idea of wheel suspension

seems to have permeated the minds of designers of future cars. Starting some time ago with experiments in this country that followed actual installation in automobiles abroad, next year bids fair to see many, if not most, popular American models so equipped.

Detroit engineering laboratories and proving grounds have passed over to the production lines the fruits of their labors. Several partsmakers in Detroit and nearby mid-western districts have the plans and specifications of important automobile manufacturers in hand for wheel suspension units.

Briefly, wheel suspension as it stands today is an axleless model for the two front wheels only. The rear wheels remain conventional. The front wheels, each independently set from the other, are mounted to the frame. The advantage is in greatly improved riding qualities.

Aside from those automobiles definitely set for wheel suspension which have been mentioned in these columns previously, others are joining. Chrysler parts makers have been asked to figure on the box-type units set next each of the front wheels, which constitute in themselves the gist of suspension. Chevrolet is virtually certain to have some form of the Buick wheel and spring design. Buick's, incidentally, will be the first for the public to see.

And, if automotive history repeats itself, as there is little to reason next year to suppose otherwise, independent wheel suspension may spread like wildfire through the ranks of all motor makers. History has shown how the so-called "patents" of other years, have been taken up by all motor car manufacturers. One need only consider the speed with which free wheeling was taken up, or four-wheel brakes, or floating power. Patents to the automotive industry aren't the tangle they are in some other industries.

The idea of wheel suspension, or independent springing as it is sometimes called, may be what the public wants but steelmakers had best consider future tonnage in this new light. Wheel suspension, be it only the front two wheels, in turn means less steel in the motor car. Much of the heavy frames and total weight of the present automobile is in so-called "dead weight." Steel has been used for heavy frames to take up shock and improve riding qualities. Now, the strain is off heavy construction, for the practicability of wheel suspension is to make each wheel take up its own shock and not transmit it down the frame, through the body or to the other wheels. Lighter frames mean less steel.

The foreign makes now having wheel suspension have considerably lighter steel frames than their more conventional brother cars. The foreign models having pioneered independent springing, show the result accurately in the diminished tonnage of frame steel used.

HUPMOBILE has been casting an envious eye at the low-priced field for some little while and shortly will be ready to proceed on a model in two series in the $500 base price field. Hupp, after watching Chrysler, Hudson and others, each formerly in its own price range, place an entry in the low-priced field, definitely seems about to plunge in.

Hupp has been figuring assembly costs on these new models recently and within the past few weeks has been asking bids on parts. The body contract may be placed shortly. Hupp may run into difficulties as far as assembly facilities are concerned on a volume model, unless its Cleveland plant is resorted to.

Graham-Paige is changing its source on bodies. After three years of supply on body stampings from Mullins Mfg. Co. at Salem, O., the contract was terminated late in August. Dies are being shipped from Salem back to Graham, competitive bids on the new contracts have been taken and the 1934 body work bids fair to go to Murray. Murray is already making Graham frames.

It may not yet be generally known either but Murray has just taken the Auburn body contract, also all of the stampings of 1934 away from Heintz at Philadelphia. Murray still has the large Reo job, Hayes Body at Grand Rapids the small Reo, but rumor is heard that some realignment in this account is possible.

For 1934, Briggs and Murray seem just as close to Ford; Budd without doubt will continue the largest Chrysler body supplier. No other important changes in automobile body contracts seem brewing.

FORD by tentatively scheduling October assemblies at 55,000 to 60,000 units places the delayed plant vacation as definitely out of the picure this year. As time goes on and fall is at hand, the failure to introduce his model "44" more or less precludes the fact that it will be shown to the public at all this year. It seems safe to assume that the model will be saved until the spring buying months of next year.

Ford has been working on a new type of carburetor which works on a suction principle and lacks a fuel pump. It is possible this may be placed both on the V-8 and the small car to come.

Higher prices on the new Packards are not surprising. This will be repeated on virtually all of the models next year. . . . Plymouth is now making a special sedan for country use to care for high road crowns. It has 20-inch wheels, special springs and a 9¾-inch clearance, though built on the standard chassis.

Move Gary Workers from Charity to Former Jobs

Illinois Steel Co., Chicago, since commencement of the industrial upturn early in June, has restored to jobs all but 79 of its former employes at the plant at Gary, Ind., whose families were carried on relief rolls at that time. Total indigent workers given employment is about 1600, representing more than 25 per cent of the Gary relief roll in June. Of the 79 still on relief 12 are ill, 12 are over the Steel corporation's age limit, five are serving in the reforestation army and eight cannot be found.

Died:

ALBERT J. MYERS, 45, assistant to the vice president, Koppers Construction Co., Pittsburgh, at New York, Aug. 29. He was born in Cleveland, was a graduate mechanical engineer of Ohio State university and was employed in technical capacities with several Ohio companies before joining the Koppers organization in 1915. Over the past 18 years he has served as engineer, assistant chief engineer, chief engineer and assistant to the president with that company.

□ □ □

Edward J. Meyer Sr., president, Meyer-Smith & Co., Aug. 30.

□ □ □

E. Macey Pink, vice president, Canadian Warren-Pink Ltd., Pembroke, Ont., Aug. 29.

□ □ □

Otis J. Cessna, 59, of the sales department, Albion Malleable Iron Co., Albion, Mich., in that city, Aug. 20.

□ □ □

Charles W. Gates, 73, for 31 years purchasing agent, United Shoe Machinery Corp., Boston, in Beverly, Mass., Aug. 23.

□ □ □

E. I. Heinsohn, 57, formerly president of the Glascote Co., Cleveland, tank manufacturer, and long identified with metal working companies in Cleveland, in that city Aug. 22. He organized the Cleveland Welding & Mfg. Co., now the Cleveland Welding Co., in 1911.

□ □ □

Otis Baker Cowles, 101, former president of the Onondaga Pump

(*Please turn to Page* 61)

Industrial Men in the Day's News

A. W. Mace, Assistant to President, Ludlum Steel Co.

CLERGYMAN'S son, reared on farm, clerk in country store, he finally worked his way through Yale.

ACQUIRED his first experience in the steel industry in the Homestead mills; developed salesmanship.

BECAME interested in ordnance and projectile steel during World war; held important post in steel allocation.

ABRAM WILBUR MACE, recently appointed assistant to H. G. Batcheller, president, Ludlum Steel Co., Watervliet, N. Y., is a well-known figure in the steel industry. Born in Broome Center, N. Y., the son of a Christian Church clergyman, Mr. Mace spent his early years on the farm, going to the country school and working in the country general store. Later he went to Hotchkiss school and then to Yale, graduating in 1906 with the degree of bachelor of arts. He worked his way through college, largely with the sale of advertising.

After graduating he began his connection with the steel industry by going to work in various capacities at the Homestead, Pa., plant of the Carnegie Steel Co. There he remained three years, serving in all departments, and then was transferred to the warehouse sales department, working successively in New York, Boston and Newark. In 1911 he was transferred to the United States Steel Products Co., also a subsidiary of the United States Steel Corp., and stationed at Toronto, Ont.

When Canada in 1914 entered the World war Mr. Mace became interested in ordnance and projectile steels, and as a result was soon brought back to New York and made assistant manager of the steel department of the Steel Products company, in charge of ordnance. In that capacity he had charge of making contracts with foreign government commissions.

In 1917, when the United States entered the war, Mr. Mace was sent to Washingon, and under the late James B. Bonner took charge of sales of ordnance materials by the subsidiaries of the Steel corporation. Shortly after he was commandeered by the steel committee and placed in charge of the allocation of projectile steel in this country both for foreign and domestic requirements. At the conclusion of the war, he was assigned in charge of the settlement of all uncompleted contracts between the government and various Steel corporation subsidiary companies.

Mr. Mace then went back with the Steel Products company, and served in various capacities until 1928, when he became assistant to E. P. Thomas, vice president, Steel corporation, retaining that connection until Mr. Thomas' resignation.

Mr. Mace resides at Richmond, Berkshire county, Mass. He is a member of the Yale club of New York, the American Iron and Steel institute and the American Society for Testing Materials.

SEVERN P. KER, chairman of the board, Sharon Steel Hoop Co., Sharon, Pa., and a veteran executive in the steel industry, will resign his chairmanship of the Sharon company Oct. 1. He will retain a directorship in the company. Mr. Ker entered the steel business in 1885 when he became associated with the La Belle Steel Co., Pittsburgh. Later he was with the American Steel Hoop Co., the Crucible Steel Co. of America, and Republic Iron & Steel Co. Until his resignation in favor of Henry Roemer as president of Sharon Steel Hoop Co. a few years ago, Mr. Ker had held the presidency for 21 years.

□ □ □

Charles H. Garity has been appointed director of purchases and procurement by the Tennessee Valley Authority. Recently he was associated with the Arundel Corp. as purchasing agent and office manager on the Safe Harbor, Pa., hydroelectric project.

□ □ □

Lee I. Smith has been named New England district representative by Roots-Connersville-Wilbraham, Connersville, Ind., manufacturers of blowers, gas exhausters and meters, liquid and vacuum pumps, and inert gas machines. He received his technical training at Franklin Union and Lowell Institute in Boston, and upon graduation was associated with B. F. Sturtevant & Co., subsequently being employed by the Semet-Solvay Co., and the Parker Russell Mining & Mfg. Co. in sales and engineering work.

□ □ □

I. H. Sclater has been appointed

(*Please turn to Page* 61)

EDITORIAL

Why Not Use PWA Money To Eliminate Hazards?

THE purpose of the national industrial recovery act, as stated in its title, is "to encourage national industrial recovery, to foster fair competition and to provide for the construction of certain useful public works, and for other purposes."

Judging from what has transpired since the act was passed, the government is intent primarily upon increasing employment. Apparently President Roosevelt and his advisers believe that more jobs are fundamental in accomplishing the stated purpose of the legislation.

General Johnson, in charge of "industrial recovery" as provided for in Title I of NIRA, has stressed re-employment and higher wages above everything else in dealing with the codes submitted by industry. Secretary of the Interior Harold L. Ickes, who as federal administrator of public works is charged with the responsibility of directing the public works program under Title II of NIRA, also is emphasizing re-employment in the disposition of the $3,300,000,000 which has been placed at his disposal.

Tremendous forces thus are available under the two titles of the act, yet the results thus far (making due allowances for the element of time and the size of the job) have been disappointing. Labor relations and other extraneous problems crept into the industrial recovery program, thereby diverting attention from the main objective. As a result, by Labor day about 2,000,000 workers, rather than the 6,000,000 expected by General Johnson, had been returned to jobs. Meanwhile, Secretary Ickes has been so anxious to keep pork barrel politics out of the public works administration that the program is far behind schedule.

Has Government Attempted To Accomplish Too Much Through NIRA at One Stroke?

That the two programs are not up to expectations is not due to inefficiency. On the contrary, both administrations have done remarkably well with almost impossible tasks. Perhaps the real trouble is that the administration has been trying to do too much at one stroke. The programs have been so broad in scope that it is difficult to cut through entangling obstacles. One wonders if results would not be more gratifying if the administrators were to concentrate their efforts upon fewer and more important objectives.

For instance, the public works administration is trying to spread its influence so that benefits will accrue to every county in the nation. It has allotted $400,000,000 to public roads; $50,000,000 to roads in national parks, forests, Indian reservations and public lands; $1,344,480 for repairing immigration stations; $210,008 for reconditioning the Alaskan railroad; and millions for other similar projects. These have the virtue of affording employment over a wide area of the country, but their necessity in many cases is questionable. Moreover, it is difficult to get these projects underway promptly.

Meanwhile, there are hundreds of urgently needed improvements which have been held up because their sponsors cannot finance them. In a midwest state a railroad, state and local community are trying to find some way to raise money to eliminate a grade crossing where dozens of persons have been killed in recent years. Last month four persons were killed at this crossing in a single accident. During the last 10 years 22,279 persons have been killed and 62,025 have been injured at railroad grade crossings.

Public Money for Definite, Necessary Improvements Could Be Used More Promptly

If the government must spend $3,300,000,000 for public works, why not allot part of the money to grade separation? The expenditure would afford as much employment as roads and would save life. Moreover plans for eliminating the worst crossings already are prepared. Work could be started promptly.

Last week 14 persons were killed and 25 seriously injured in a wooden railroad passenger car. Investigation shows that many of the leading roads still have scores of wooden coaches in service. While it is true that NIRA does not provide for funds for the purchase of railroad rolling stock, would it not be better to cut through the red tape of separate government administrations and to provide for the replacement of wooden coaches by safe steel coaches than to spend the same amount of money on an unnecessary road in an out-of-the-way Indian reservation, or on the Alaskan railroad, or on immigration stations?

Money spent for railroad cars and grade elimination work would not be wasted. It would help to wipe out conditions which now may be characterized as a national disgrace.

Public funds used for definite, needed projects as compared to public funds used for hit-or-miss "make employment" projects are as rifle fire compared to bird shot.

THE BUSINESS TREND

Recession in August Uneven; Strike Threat Looms

AVAILABLE figures for the month of August show considerable variation in the extent of the recessions in important industries. Production of some commodities has not suffered appreciably; that of others has been curtailed sharply.

According to the figures of the American Iron and Steel institute, steel ingot output in August totaled 2,900,611 tons compared with 3,203,810 in July. On the basis of daily average, the decline in August from the previous month was 16 per cent. Operations in the eighth month were at 49.42 per cent of capacity, as against 58.95 per cent in July. STEEL's weekly estimates of steelworks operations in August average 50.6 per cent, as compared with the institute's calculated percentage of 49.42.

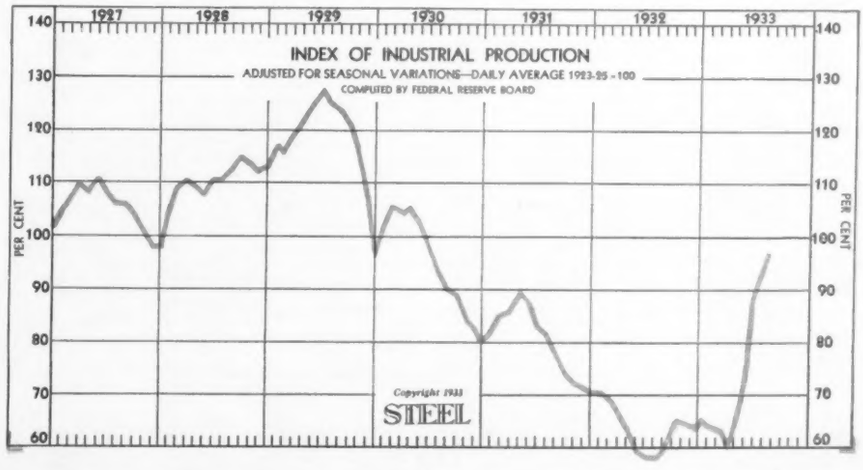
Pig iron output, less susceptible to prompt coordination to demand, continued to gain slightly in August. Average daily output was 59,011 tons compared with 58,108 in July—a gain of only 1.5 per cent. However, only 98 stacks were active on the last day of August, whereas 105 were operating on July 31.

Revenue freight traffic fluctuated within a narrow range throughout August. It declined the first week, gained in the second and third weeks and slumped again in the fourth. Preliminary figures for the final week (ending Sept. 2) indicate a slight gain. The absence of a definite trend in August is not unusual; in fact car loadings in that month usually swing up and down moderately.

Increased Costs and Threat of Strikes Tend To Complicate Business Outlook

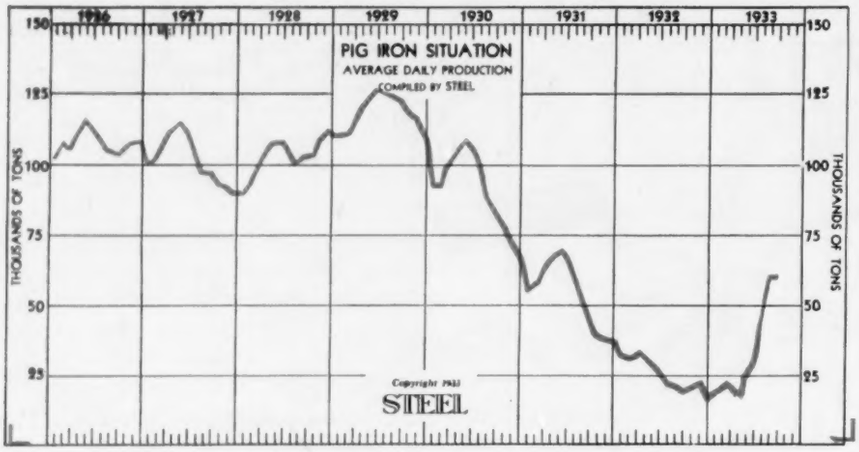
The prospect for business over the remainder of the year is complicated by several unusual uncertainties. One is the effect of higher costs and prices stimulated by NRA. A second, and perhaps a more serious, factor is the danger of widespread labor trouble.

This latter is chargeable to NRA in that the strikes have been fomented by agitators who, having been assured that the government wishes to help workers, are seizing this opportunity to press unreasonable demands upon employers. Should the strike situation get out of hand, production will be affected drastically and the purpose of NRA—increased employment—will be defeated.



1933	
July	98
June	91
May	77
April	67

1932	
July	58
June	59
May	60
April	63



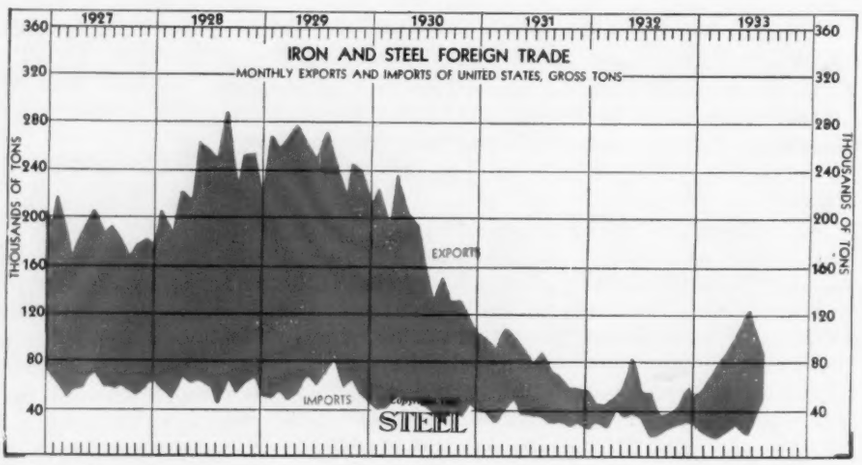
August, 1933	59,011
July, 1933	58,108
August, 1932	17,035

Pig Iron Output Registers Small Gain in August

The average daily output of coke pig iron in August was 59,011 tons, which compared with the 58,108-ton rate of July, was a gain of 903 tons or 1.5 per cent. This was the highest daily output recorded since May, 1931, with 64,355 tons. In August, one year ago, the daily rate was 17,035 tons, this being the low point of the depression. The daily output in August, 1931, was 41,264 gross tons.

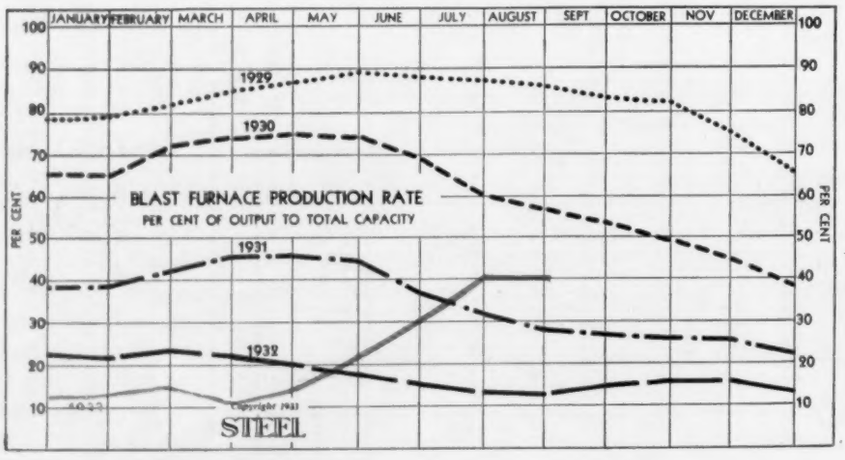
Steel Exports Down as Scrap Shipments Decline

This country's export trade in iron and steel products in July shows a decline of 16 per cent from the preceding month. This is the second consecutive monthly loss and is largely due to the reduction of scrap shipments to foreign ports. Total exports were 88,311 tons in July, compared with 102,581 tons in June. Imports at 52,805 tons were 18,437 tons greater than in June and continue the upward swing of the past five months.



Exports	Tons
July, 1933	88,311
June, 1933	102,581
July, 1932	52,558

Imports	Tons
July, 1933	52,805
June, 1933	34,368
July, 1932	18,005



August, 1933	42.8
July, 1933	42.2
August, 1932	12.0

Blast Furnace Production Rate Levels Off in August

Although there was a gain of 28,000 tons in pig iron production during August, seven blast furnaces were dropped from the active list, lowering the total of 105 furnaces on July 31 to 98 on the last day of August. Relating production to capacity, operations in August were at a rate of 42.8 per cent, as compared with 42.2 per cent in July, 30.6 per cent in June and only 12.0 per cent in August a year ago.

WELDING ROLLED STEEL DIESEL ENGINE STRUCTURES

Part II

BY EVERETT CHAPMAN
Lukenweld Inc.

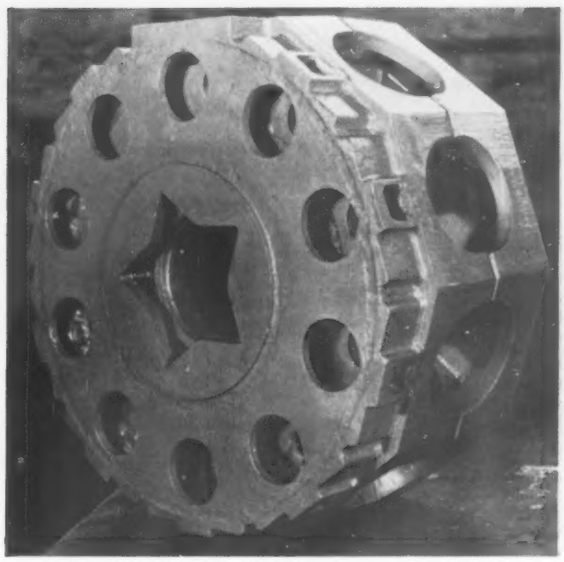
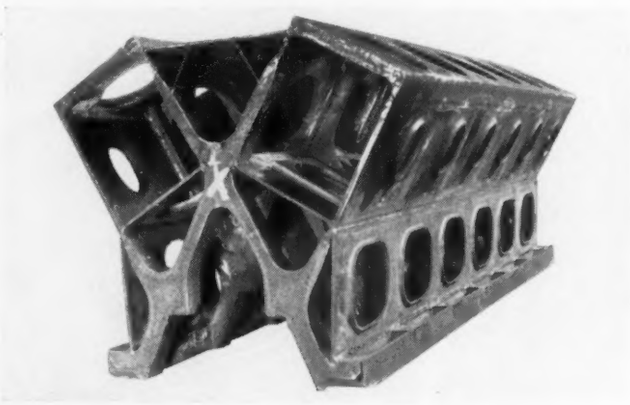


Fig. 9—Welded steel crankcase for a 10-cylinder 600-horsepower radial engine. Weight is less than 1 pound per horsepower

BASED upon tests of the experimental single-cylinder welded diesel engine frame described in the preceding section of this article, construction was undertaken of a 1000-horsepower twin-six engine, in which the entire gas load was carried by the welds. Fig. 13 shows the type of flame-cut main frame which was used. This frame transmits the gas load of one bank of cylinders past the gas load of the other bank of cylinders, and into the main bearings. The minimum weight design is one in which the material is loaded in straight tension. The flexibility of flame-cut steel plate in meeting this ideal condition is well illustrated by the frame member of Fig. 13. The stub ends of the frame could not be run through to the top deck because the stagger of the connecting rods produced a 3-inch offset in each cylinder with respect to the cylinder in the other bank, which necessitated the use of a transition joint.

Since the transition joint had a peculiar shape, more experimental work was done to determine an efficient design for the joint before proceeding with the engine. Fig. 14 shows the result of a tensile test of the experimental joint. The stubs were inserted in the notched plate and welded strictly in accordance with the photoelastic studies. The experimental joint simulated the condition in the engine where the joint carries an impact load of 19,000 pounds. The joint shown in Fig. 14 fractured outside the weld, through the plate, at a load of 212,000 pounds. Tensile tests of such joints in conjunction with a coat of brittle varnish are very instructive. Fig. 12 shows the crankcase



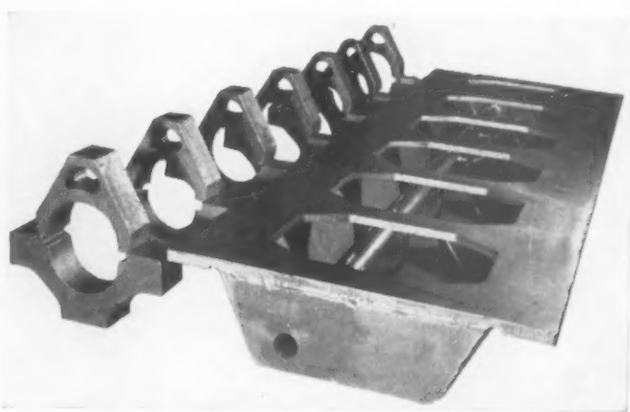


Fig. 10 (Left)—One of the later stages in fabricating the crankcase with the inner deck, side plates and stiffening ribs added. Fig. 11 (Right)—Main bearing caps and oil pan. The main bearing girders are flame cut from 4-inch plate

Fig. 12—One of the early stages in the assembly of the crankcase. The top deck was welded to the transition plate with a single butt weld running the length of the engine on each side

partly finished. The top deck was welded to the transition plate with a single butt weld running the entire length of the engine on each side. The gas load of each cylinder is then carried through the butt weld at the top deck, and through the two transition points to the main bearings. In the condition shown in this illustration, each weld, including the transition points, was radiographed by means of radium to discover any imperfections, unfused points or porosity that might have existed. The crankcase was also thoroughly inspected for undercuts and surface discontinuities.

Fig. 16 is a typical radiograph of one of the transition joints. Radiographs show imperfections as dark lines or dark spots. In the construction of two of these crankcases, it was not necessary to chip and re-weld any of the joints.

Thin Sections Stiffened

Fig. 10 shows a further stage in the progress of the crankcase. The inner deck which carries the lower end of the cylinder liner is in place. The side plates and stiffening ribs have been added. The handholes providing access to the connecting rod caps and the handholes for inspecting the piston rings have been flanged in the side plate itself. In welded steel construction, there is a tendency to use thin sections because of the strength of the material. It is necessary to guard against unsupported areas of any magnitude in thin material when the mechanism is one which may set such areas in resonant vibration. The flued handholes stiffen the thin plates admirably against this phenomenon.

Fig. 11 shows the main bearing caps and oil pan. The main bearing girders are flame-cut from 4-inch steel plate. The oil pan was constructed as shown to provide a tie for the bottom legs of the main frame members. Fig. 15 shows the completed crankcase as it left the weld shop. It is mounted on the oil pan to illustrate the manner in which the oil pan forms the bottom tie for the complete case.

Built in the high strength, welding quality alloy steel, this crankcase has a weight of about 2.6 pounds per horsepower. The entire engine weighs less than 10 pounds per horsepower running on the test block. Calculated from the indicator card, each weld in this structure is subjected to an impact load of 38,000 pounds occurring twelve times each second. Referring to Fig. 6 (STEEL, Aug. 28, page 33), the recently completed 300-hour full load run indicates that the frame has been subjected to a number of cycles of stress far beyond that necessary to establish the fact that the stress concentrations which undoubtedly exist in the frame are not large enough to raise the average stress above the endurance limit for the alloy steel from which the frame is made.

The performance of this welded steel crankcase offers conclusive proof that welded joints can be designed and constructed commercially to handle, at a high stress, the most severe type of load encountered in modern mechanical practice—that of repeated impact.

Applied to Radial Engine

Another application of welded steel construction to diesel crankcases is shown in Fig. 9. It is a crankcase for a 10-cylinder 600-horsepower radial engine, constructed in welded steel, using as the base metal the same high strength alloy steel employed in the twin-six engine. All weld metal specimens deposited with the alloy electrode used to fabricate this case and the twin-six case have a yield point of 65,000 pounds per square inch, an ultimate strength of 95,000 pounds per square inch, and an elongation in 2 inches of 24 per cent. Here again the main loads are carried by a weld and it is necessary only to pay strict attention to all the design details to insure that such a case will exhibit satisfactory performance.

Attention is called, in Fig. 9, to the use of steel castings to form the periphery of the cam pocket. The contours involved around the push rod guide bushing and the bolts tying the two halves of the engine together were sufficiently intricate to dictate the use

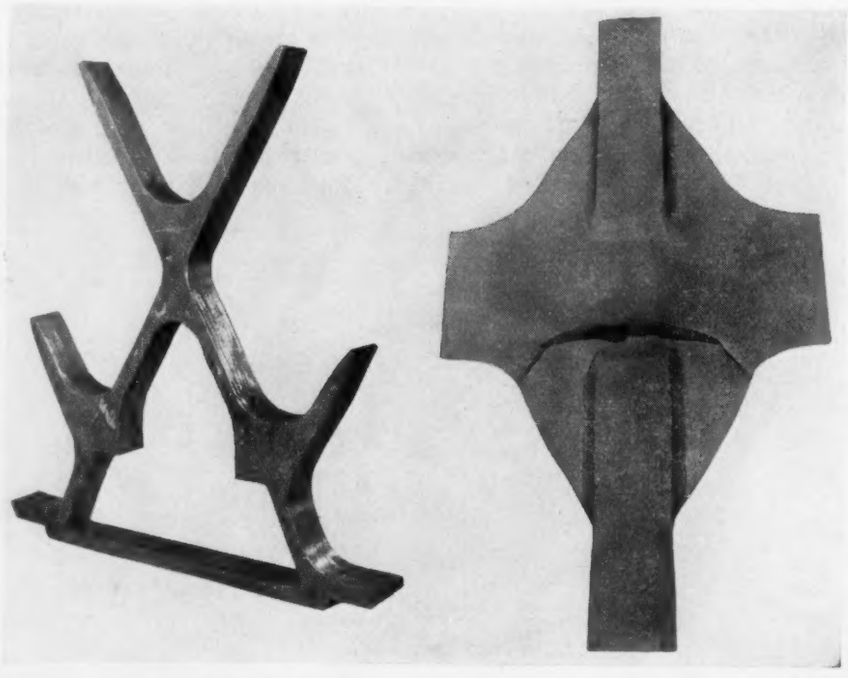


Fig. 13 (Left)—This shows the type of flame-cut main frame which was used in construction of the 1000-horsepower twin six engine. Fig. 14 (Right)—Tensile test of a peculiarly-shaped transition joint. The break occurred outside the weld

CONSTRUCTION of a 1000-horsepower twin-six diesel engine crankcase utilizing welded steel structures is described in this article, the second and last of two articles. This crankcase weighs only 2.6 pounds per horsepower and the entire engine less than 10 pounds per horsepower. In previous practice, weight ranged from 40 to 250 pounds per horsepower. Under construction today is a welded diesel engine for railroad main line high-speed motive power, and others are in prospect. Also described is a welded diesel radial aircraft engine crankcase weighing less than 1 pound per horsepower. Part I, discussing preliminary design, appeared in the Aug. 28 issue of STEEL. *These two articles constitute a paper presented in Atlantic City, Aug. 23, before the Oil and Gas Power division of the American Society of Mechanical Engineers. The author is vice president in charge of engineering, Lukenweld Inc., division of Lukens Steel Co., Coatesville, Pa.*

of a steel casting. The parts were cast in units of one per cylinder and the entire casting assembly welded into one ring, which was inspected and machined before welding it into the rest of the assembly. The weight of the radial engine crankcase is less than 1 pound per horsepower.

In an application such as this, it is essential that the carbon content of steel castings be maintained below 0.20 per cent and that the castings be of the finest grade obtainable. For use in welded steel assemblies, electric furnace castings are highly desirable because of the close control over both pouring temperature and analysis. The small amount of dissolved gases present offers favorable welding characteristics.

Welded steel crankcases of the types discussed enable the engine builder to offer to the user of mobile prime movers a light-weight, highly efficient and powerful unit, embodying all the advantages of the diesel principle. Winton Engine Corp., Cleveland, with which it has been a privilege to work in this development, can offer today an engine-generator unit supplying 750 kilowatts of electric energy which, including all auxiliaries, will weigh 30 pounds per horsepower.

Railroads See Possibilities

Railroad vision has enabled immediate application of this notable prime mover to main line service. Under construction today is a welded steel engine structure which will be used in the power unit of the Union Pacific system's 110-mile per hour high-speed passenger train. The Chicago, Burlington & Quincy's high-speed passenger train will have as its motive power a 600-horsepower diesel engine of welded steel construction.

Some progressive railroad undoubtedly will take the next step and employ two or three of these units on a single chassis for main line freight movement at an economy never before approached.

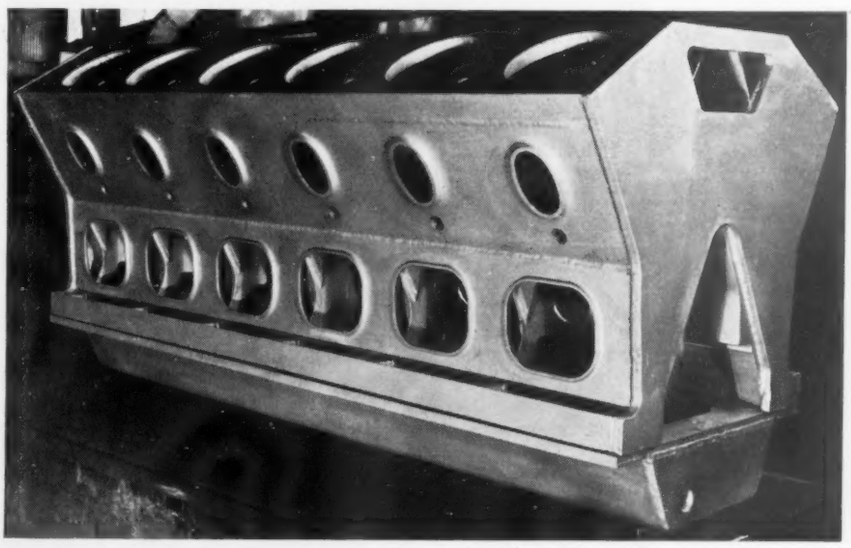


Fig. 15—A view of the welded crankcase as it left the weld shop. It is shown resting on the oil pan to show how the latter forms the bottom tie for the complete case

Develops New Grade of Phenolic Roll Bearing

A new grade of micarta, known as grade No. 1C17, has been developed by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., for the radial part of roll neck bearings on severe applications. It can be machined or sawed to any desired shape. Advantages of this grade for radial liners are claimed to be ability to stand higher thrust loads and pressures without dislamination, splitting, or working out of the chuck. Grade 863, which is similar in texture, is being used for thrust plates on all bearings.

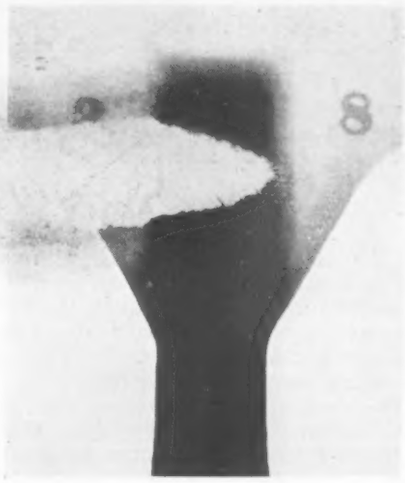


Fig. 16—A typical radiograph of one of the transition joints of the type tested in Fig. 14

Micarta No. 1C17 and 863 are green in color to distingush them from 1B21 and 262 which are used widely on bar, rod, wire, and other small mills, and which still may be used for the radial parts of bearings on lighter pressure applications.

Silicon Carbide Refractory Has Carbon Bond

An improved silicon carbide refractory brick, known as Tercod refractory, for use in electric furnaces, has been developed by the Electro Refractories and Alloys Corp., Buffalo, and was described for the first time at a recent meeting of the Electrochemical society in Montreal, by G. S. Diamond, vice president of the company.

Thermal expansion is low, being reported only 1/9 that of silica brick; electrical and thermal conductivities are claimed to be higher than those of silica brick. Composition is a mixture of silicon carbide, with or without graphite, a carbon bond and a protective boro-silicate glaze to prevent oxidation. The carbon bond provides rigidity up to the dissociation temperature of silicon carbide.

The new brick is said to be inert to acid or neutral slags, but is attacked by basic slags. It is applicable to furnaces melting iron containing 3 per cent carbon or above, and melting nonferrous metals. Experiments have been made with fused alumina glazes; bricks thus faced have been used successfully in melting low-carbon steels and nickel.

Luminous Signal Board Shows Blast Furnace Charging

ALTHOUGH the modern blast furnace is equipped with a skip hoist and machinery to perform nearly all operations, thereby requiring not more than one or two men in the stockhouse, the blower needs a current check on the progress of charging. To gain knowledge as to how the furnace is traveling, that is, how many rounds the stack is taking per hour, the blower is obliged to make frequent trips to the stockhouse.

To keep the blower constantly informed without the necessity of his having to leave his station in the cast house, Demag, Duisburg, Germany, has devised a unique luminous signal board which is completely automatic in operation. This device was described in considerable detail in a recent issue of *Demag News*.

Shows in Two Directions

The apparatus consists of a sheet steel cabinet with the top of the furnace outlined on it, as shown in Fig. 1. Ground glass panes form the panels, and lamps behind them light up or go out, according to operations. Two-fronted, the cabinet displays its signals in two directions, making them visible from both the cast house and stockhouse.

The two skip tracks also are shown, one on either side of the furnace. When the left-hand skip is at the bottom, a light appears in the lowest left-hand panel; as the right-hand skip then is at the top, the uppermost panel on the right shows a light at the same time. With the skips in motion, all skip panels light up in succession, and the "up" and "down" arrows are illuminated accordingly. Thus, the board reveals not only the location of the skips, but the direction in which they are moving. The small and large bells, referring now to Fig. 2 as well as Fig. 1, are represented in two positions (b, b_1 and c, c_1, respectively) in the diagram. A green light in the upper panel (b) states that the small bell is closed, whereas a red light in the lower panel, (b_1) of the top bell shows it to be open. The same is true for the large bell, c closed and c_1 open. Information is given on the number of skiploads (d) dumped on the large bell within the main hopper. Panel 1 lights up if one skipload is lying on the large bell; with two skiploads on it, panels 1 and 2 both show lights, and so on.

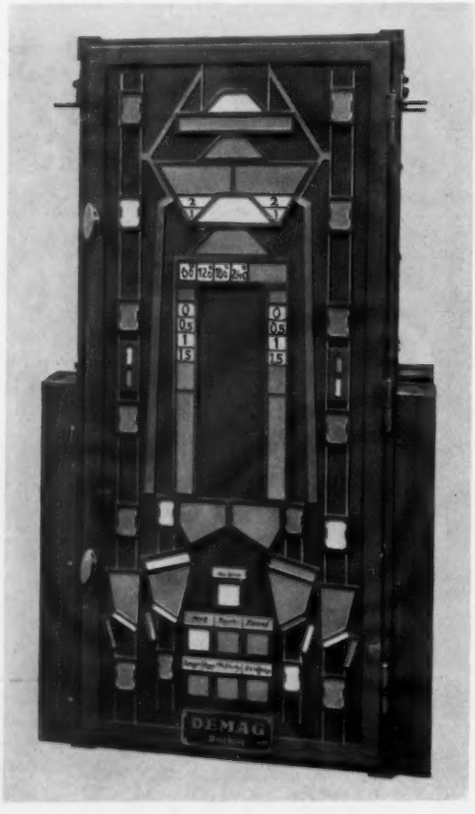
As the distributor revolves, stopping at various angles of rotation, six lights—one to each 60 degrees—are necessary on the board as indicators (e); in the signal board diagram they appear in the furnace shaft beneath the large bell. So long as the distributor is set to 60 degrees, the light remains in the left-hand panel marked "60°"; as the distributor is rotated through 120 degrees, this is shown by illumination of the "120°" panel in addition to the one for 60 degrees; and thus on for all six divisions.

Rotation Is Recorded

Next, eight lamps (a) are arranged beneath the closed small bell panel of the diagram to show whether the distributing hopper actually turns. By lighting up in succession, they indicate the rotary movement of the hopper. At 60 degrees, the eight lights flash up once in succession from left to right, twice for 120 degrees, and three times for 180 degrees.

As the distributor changes its direction of rotation on arriving at 240 and 300 degrees, the movement then reversing to —120 and —60 degrees, the lights have to run backward, that is, from right to left, showing twice in succession for —120 degrees and only once for —60 degrees.

Two sets of lamps representing two gage rods (f and g) indicate the height of the stock in the furnace. The measuring range of the rods extends to a depth of 6 meters or 20 feet inside the shaft. Blue lights appear at the top when the gage rods are



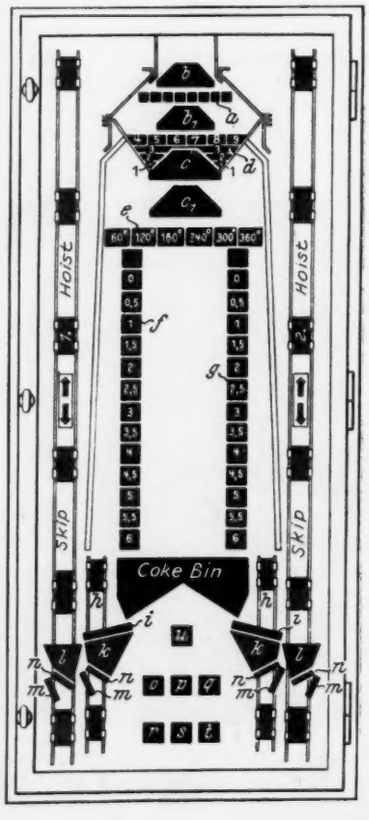


Fig. 1 (Left)—Luminous signal board visualizing the entire charging cycle of a blast furnace. Fig. 2 (Right)—Schematic arrangement of the signal board explaining its operation

KEY TO FIG. 2

a—Rotation of distributor.
b—Small bell closed.
b_1—Small bell open.
c—Large bell closed.
c_1—Large bell open.
d—No. of skiploads on large bell.
e—Position of distributor.
f—First gage rod.
g—Second gage rod.
h—Hoist for coke fines.
i—Roller grid.
k—Bin for coke fines.
l—Weigh hopper.
m—Bin drop doors open.
n—Bin drop doors closed.
o—"Casting."
p—"Repairs."
q—"Furnace hanging."
r—"Slow traveling furnace."
s—Overload cutout.
t—Irrigation.
u—"Finish" lamp, showing end of charging cycle.

Illuminated panels in Fig. 1 indicate two skiploads of coke on large bell; a third load ascending in left-hand skip; right-hand skip descending empty to carry up ore on its next trip. The furnace is casting

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withdrawn, while the remainder show in accordance with the level to which the furnace charge has dropped. The levels from 3 down to 6 meters (10 to 20 feet) have red lights as a danger signal, calling for immediate recharging. The positions of the gage rods also are made visible at the same time on another depth indicator, Fig. 3, installed on the furnace platform, and having lamps wired in parallel with the corresponding ones of the main signal board.

Complete Picture Presented

The coke bin and roller grids (*i*), weigh hopper (*l*), hoists (*h*) and bins (*k*) for coke fines, all appear in the signal board diagram beneath the furnace. When the left-hand roller grid is working, a light is visible in the narrow strip panel (*i*) representing the rollers, and the same strip on the right lighted shows the right-hand rollers to be in operation. Two narrow strip panels (*m* and *n*) are seen attached to the diagrams of the weigh hoppers and bins for coke fines. These strips represent the drop doors of the bins, open in position *m* and closed in position *n*. The hoists for coke fines (*h*) each have two panels, one for the top and one for the bottom end position. Red lights mean "open" and green ones "closed," the same as with the bells.

The single light (*u*) beneath the bins is the "finish" signal and marks the end of each cycle. In other words, it indicates that the delivery of coke has terminated, and that the operator of the scale car may now proceed with a new charge of ore and limestone.

The four lamp controls for "slow traveling furnace" (*r*), "furnace hanging" (*q*), "repairs" (*p*), and "casting" (*o*) panels, are located in a separate switchbox, Fig. 4. Every switch has above it a pilot lamp in circuit with the switch. When any switch is closed, the blower gathers from a brightly burning pilot lamp that the corresponding light is showing on both sides of the main signal board, whereas a dim light tells him that the signal is visible on one side of the board only. If the pilot lamp is dead, the entire circuit is out of order.

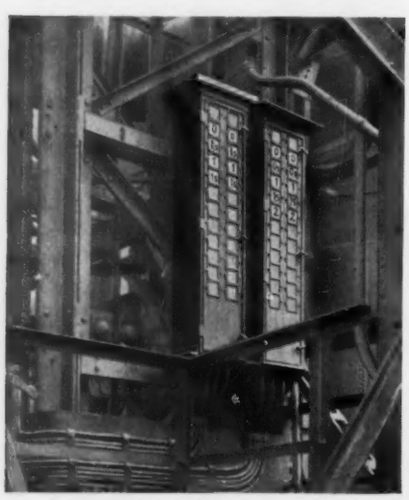


Fig. 3—Luminous signal boards indicating level of stock in two blast furnaces. The lamps are wired in parallel with those of sets "f" and "g" in Fig. 2

Fig. 4—Switch box with pilot lamps for light signals "o," "p," "q" and "r" in Fig. 2

Belts Given Accelerated Test for Endurance

Life of a leather belt may range from 3 to 30 years depending upon size and severity of service. For this reason, it is difficult for the belting manufacturer to make laboratory tests which will indicate probable life of his product. Yet, it is most important that he know something about its life, how much it is likely to stretch in its normal lifetime, whether it will be as efficient after several years wear as when new, and the like.

A specially-developed accelerated endurance testing machine enables E. F. Houghton & Co., Philadelphia, to study these factors. On this machine, two belts are operated against one another, running over pulleys of slightly different diameters so that each belt is forced to slip approximately 5 per cent. In addition, the belts are operated under a tension of 100 to 125 pounds per inch of width, which is about double the normal operating tension for a single-ply belt.

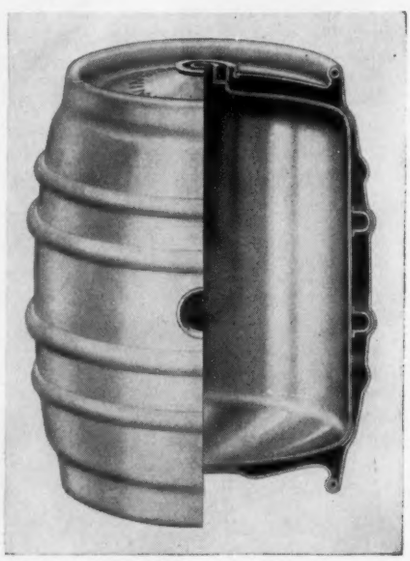
This combination of forced slip under exceedingly high tension results in one day's operation of 24 hours giving the belt the equivalent of two months' normal wear. This figure is arrived at by averaging the life of hundreds of belts on this machine with the probable life of the same belts in normal service.

When the company recently developed a new type of nonskid leather belting which has a ribbed surface, one of the first problems was to determine whether this ribbed tread would wear down smooth in the normal life of the belt. To determine this, several small belts were run on this accelerated endurance test for a period of 30 days which gave them the equivalent of 5 years of normal service. At the end of the test the surfaces were still in excellent condition.

Determines Temperature Of Magnetic Changes

Elements or alloys which are magnetic at normal temperatures become nonmagnetic if their temperatures are raised above a certain critical point known as the curie point. The magnetic properties are regained in most materials upon cooling, although the point on cooling is not at the same temperature as upon heating. To determine this curie point with the minimum of attention on the part of an operator, an apparatus has been designed and built in the research laboratories of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

The apparatus is comprised of a furnace to heat the specimen under test, a magnetic transmission system of which the specimen is a part, and a recording apparatus. The system is composed of two cobalt bars with the sample placed between their two ends. On one bar is a coil which sends energy through the bar system to a pick-up coil on the other bar. A thermocouple is attached to the specimen to show its temperature. The energy received by the pick-up coil and the temperature indication for the thermocouple are recorded on a chart by a recorder.



BEER BARREL STAINLESS LINED: Cutaway view of new Krupp-Ingersoll stainless steel lined beer barrel (STEEL, *July 3, p. 27*) *now in production by Ingersoll Steel & Disc Co., Chicago, under joint agreement with Krupp Works, Essen, Germany, and the Ludlum Steel Co., Watervliet, N. Y., shows how the inner shell is supported yet does not touch the outer carbon steel shell at any point. Insulation and protection against shocks is thus provided*

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Analysis of Factors Influencing

Rolling Pressure and Power Consumption In the Hot Rolling of Steel

BY SVEN EKELUND

Translated by BENGT BLOMQUIST

Part II—Geometrical and Dynamical Conception of Parallelopipedal Deformation

(Fourth Article of Series)

PARALLELOPIPEDAL deformation is defined as being composed solely of displacements in three mutually perpendicular planes. Thus, if the body is considered as consisting of a number of rectangular parallelopipeds, the surfaces of which are parallel to the planes of deformation, these surfaces will remain plane during the deformation.

A rectangular parallelopiped is assumed, which has the dimensions l, b and h, and the volume V, and which is deformed with plane lateral surfaces. Since the volume is constant during the deformation, the following equation is valid:

$$-b \cdot l \cdot dh = b \cdot h \cdot dl + l \cdot h \cdot db$$

$$-\frac{dh}{h} = \frac{dl}{l} + \frac{db}{b} \quad \text{.....(12).}$$

If the principal directions parallel to l, b, h are X, Y, Z, the following equation is valid for any point having the coordinates x, y, z, within the body:

$$-\frac{dz}{z} = \frac{dx}{x} + \frac{dy}{y} \quad \text{.....(13).}$$

This relation is an expression for the movement of the point on the surface:

$$xyz = V_{xyz}\,(\text{constant}) \quad \text{.....(14).}$$

V_{xyz} is a rectangular parallelopiped having the edges x, y, z, and having one corner located at the origin.

The specific deformation inside the body in a certain principal direction is constant at all points. Thus, if equations (12) and (13) refer to the same case of deformation, we can write:

$$-\frac{dz}{z} = -\frac{dh}{h}\,;\ \frac{dx}{x} = \frac{dl}{l}\,;\ \frac{dy}{y} = \frac{db}{b}$$

From this also follows:

$$-\frac{dz}{z} \cdot \frac{x}{dx} = n\,(\text{constant}) \quad \text{.....(15).}$$

and

$$-\frac{dz}{z} \cdot \frac{y}{dy} = n_1\,(\text{constant}) \quad \text{.....(16).}$$

Then

$$\frac{1}{h} + \frac{1}{n_1} = 1$$

If equations (15) and (16) are integrated, we have:

$$x^n \cdot z = k\,(\text{constant}) \quad \text{.....(15a).}$$

and

$$y^{n_1} \cdot z = k_1\,(\text{constant}) \quad \text{.....(16a)}$$

These functions represent the movement of the particles at each point parallel with x-y and y-z planes. (See also Rummel, *Stahl und Eisen* 1919, p. 269).

Requires Plastic Body

Inasmuch as the deformation requires movement of the particles of which the body is composed, it is evident that the deformation can be carried out only when the body is subjected to the influence of one or several external forces, which are sufficiently great to overcome the resistance to sliding between the particles. It then is presumed that the body may be subjected to deformation without breaking into pieces, or in other words, that the body is more or less plastic. If a body that is typically plastic and, capable of being deformed to a great or unlimited extent without rupture, is subjected to positive or negative stresses in three principal directions, and if these stresses are of such magnitudes that continuous sliding occurs; this sliding will take place in one or several planes, which are inclined at 45 degrees to those principal stresses between which the difference is greatest. This is due to the fact that the shearing stress reaches a maximum in these 45-degree planes. Since this condition prevails for tensile as well as for compressive stresses, it is evident that no friction occurs between the sliding surfaces, but that the only resistance to be dealt with is due to cohesion.

If friction occurs and the body is compressed, the inclination of the slip-planes will change so that the inclination to the direction of compression will become less than 45 degrees. By comparing the yield point in tension with that for compression, it is possible to decide whether or not internal friction occurs. The yield point for compression is higher than that for tension if internal friction is at hand, regardless of the influence of the external friction upon the resistance to sliding. In the cold state, steel has nearly the same yield point for tension as for compression; in fact, the yield point in compression is slightly less. Cast iron has no pronounced yield point, but shows a greater resistance to compression than to tension. From this, the conclusion may be drawn that internal friction must be considered when cast iron is compressed.

Uniformity Is Affected

If, as is generally the case, external friction occurs in the pressure surfaces, the distribution of forces inside the body will be nonuniform and the maximum stress will change with regard to magnitude and direction. At any rate, for a completely plastic material, the previously mentioned law still is valid, and the slip-planes will be inclined at 45 degrees to the maximum resulting compressive (or tensile) force. Above the yield point, equalization of forces takes place within the body. However, these forces may be directed differently in each part of the body, with regard to the direction of the external forces. The general law according to which stresses are set up and distributed reads as follows: The sum of the reactions of the internal forces is equal to the sum of the actions of the external forces.

In certain cases, the resistance to sliding within the body depends upon the extent of the deformation or sliding. This phenomenon, called cold-working, is observed in most metals in the cold state. For high-carbon steel, the cold-working is considerable, which can be seen from the force-travel curve above the yield point, especially if this curve is referred to the minimum section of a test piece in a tensile test. The more ductile a material is, the less is the cold-working. For soft steel, copper, and lead, the cold-working is much less. Thus, a material is the more ductile, the

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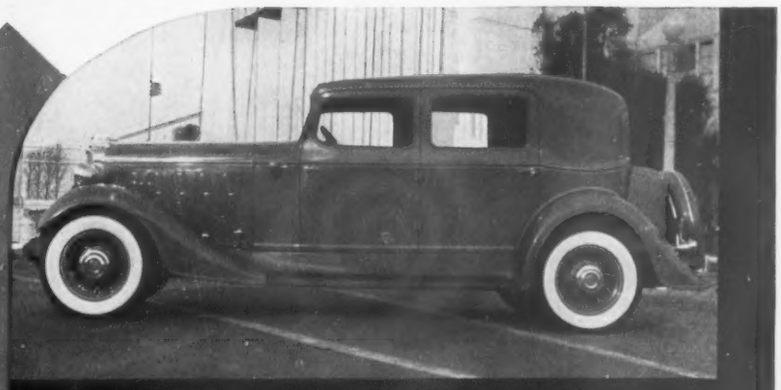

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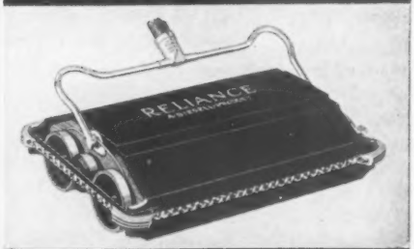

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flatter the mentioned curve is above the yield point. With regard to steel at high temperatures (above 1500 degrees Fahr.), nothing proves that the resistance to sliding should depend to a greater extent upon the magnitude of deformation. The static force-travel curve for low and high-carbon steel at high temperature, therefore, should be a straight line at the level of the yield point.

Involves Sliding Action

Cold-working occurs only in bodies which are composed of crystals. Deformation of a crystalline body is carried out in the form of sliding along certain slip-planes within the crystals. After studying cold-worked metals by X-rays, it has been found that the crystals have become oriented in the direction of the applied force, and that the slip-planes are inclined to this direction by a certain number of degrees. Iron crystallizes in the regular system, and the crystals thus have the highest degree of symmetry. The number of possible slip-planes therefore is large. Above Ac_3 iron has a face-centered cubic space-lattice. A pattern of this kind, as well as a body-centered cubic lattice, when subjected to compression, will arrange itself so that the slip-planes tend to become symmetrically located with regard to the direction of the compressive force. This has been found by X-ray investigation. (See Koerber, *Stahl und Eisen* 1922, p. 365). The principal slip-planes, which usually are octahedral planes for a face-centered cubic space-lattice, thus may be arranged with eight planes inclined at 32.25 degrees to the direction of force, or with six planes inclined at 19.5 degrees and two planes with zero inclination. The faces of the cube may be arranged as follows: Six planes with an inclination of 32.25 degrees to the direction of force, or four faces parallel and two faces perpendicular to this direction: Finally, as a rhombic dodecahedron, eight faces may be inclined at 45 degrees to and four faces may be parallel with the direction of force, or six faces may be inclined at 54.75 degrees while the remaining six are parallel to the direction of force. A space-lattice with the slip-planes thus arranged offers greater resistance to deformation than a space-lattice in which the slip-planes are inclined at 45 degrees to the direction of force. This fact may be an explanation of the cold-working phenomena.

Investigates Arrangement

However, because the principle of least resistance must be valid, it remains to explain why the slip-planes in certain cases arrange themselves obstructively. Koerber's investigation also included copper, which has a face-centered space-lattice. It is possible that γ-iron may show some discrepancies, but since the influence of the magnitude of deformation is negligible, as mentioned earlier, the slippage under all circumstances should take place in planes inclined at 45 degrees to the direction of force. It is also possible that the difference between the slippage in 45 degree and 32.25 degree planes is too small to be observed from the results of test rolling.

The normal stress p, as a function of the shearing strength t and the slip angle ϕ, is:

$$p = \frac{t}{\sin\phi \cdot \cos\phi} = \frac{2t}{\sin 2\phi} \quad \text{.....(17).}$$

Thus, the normal stresses at 45 degrees and at 35.25 degrees are $2t$ and $2.12t$ respectively, which is a trifling difference. On the other hand, if the angle of slip were 19.5 degrees, p would be equal to $3.18t$.

Inasmuch as different slip-planes in the crystal have different shearing strength, the shearing strength t ordinarily defined will be either an average of the different values, or the shearing strength which occurs in each separate case.

If the normal pressure is constant, the shearing strength according to equation (17) will be:

$$t = \frac{p}{2} \sin 2\phi \quad \text{.....(17a).}$$

$\sin 2\phi$ has the same value for ϕ and $(90° - \phi)$, which means that the stress is the same in two mutually perpendicular planes. If these planes are limiting surfaces, and if their projections in the direction of the normal force are equal, the shearing forces in these surfaces will be components of the normal force on this projection. With reversed procedure, the normal stresses can be obtained from these shearing surfaces, if any two mutually perpendicular surfaces within the body have the same shearing stress, and if their projection in the direction of the normal force is equal to 1.

When the deformation of a plastic body is carried out with a certain rapidity, the resistance is greater than that corresponding to the static shearing strength. This increase in strength, called velocity effect, is caused by the viscosity of the plastic mass. The velocity effect increases with the speed, and increases more rapidly at low than at high speeds. A material which has a marked velocity effect is pitch. A piece of pitch, under the influence of gravity may spread slowly like a liquid, while its resistance to a blow is considerable. The strength of certain alloys, such as monel metal, which consists of 60 per cent nickel and 40 per cent copper, also depends to a great extent upon the rapidity of deformation. For iron at high temperatures and low speeds, the velocity effect is negligible in comparison to the static strength; but as the speed increases, the influence of velocity must be considered, and investigations on hot-rolling with high speeds show that the velocity effect is directly proportional to the speed. The higher the temperature, the fewer deviations from this rule. Since this law also is valid for liquids in laminar flow, without turbulence, it seems justifiable to regard the velocity effect of the plastic body as the manifestation of pure liquid friction.

The force dK which is set up between two surface elements dF, which are a distance da apart, will thus be:

$$dK = \eta \cdot \frac{dv}{da} \cdot dF$$

if the difference in velocity in the direction of the surface is dv and the coefficient of velocity is η. This equation also can be written in the form:

$$\frac{dK}{dF} = \eta \frac{dv}{da} \quad \text{.....(18).}$$

In this equation, $\frac{dK}{dF}$ represents the shearing stress between the surfaces which is caused by the velocity effect. This equation is analagous to the expression for the static shearing stress for elastic deformation, which is:

$$t = G \cdot \frac{ds}{da} \quad \text{.....(19).}$$

where G represents the modulus of shear and $\frac{ds}{da}$ represents the elongation. Hence, the general laws of elasticity, derived from equation (19), may be applied to the velocity effect.

Lubricant Contains Lead In Metallic Form

A new lubricant in which metallic lead is the protective element and intended to be used as a gear and bearing lubricant, pump and valve packing, wire line and belt dressing, has been developed by the Armite Laboratories, 1450 East Sixty-first street, Los Angeles. The lead is broken down into such finely divided parts as to be virtually a soluble or liquid lead within a lubricant vehicle.

This new product, known as Bestolife, forms a thin protective film of lead on all contacting surfaces which changes these surfaces to a continuous unbroken, antifrictional area, according to the manufacturer. The lubricant is said to be free from chemical reactions.

Lead content ranges from a minimum of 10 per cent up to 65 per cent. The product is claimed to withstand temperatures up to 430 degrees Fahr. and will not lose its lubricating stability entirely until the melting point of lead is reached at 590 degrees.

The manufacturer has issued a bulletin describing the new lubricant and its applications.

Seen *at A*

CENTURY OF PROGRESS

AN INTERESTING exhibit in the Chrysler building is a miniature working model, built to scale one sixteenth actual size of a complete bonderizing outfit as it might be installed in any automobile plant. Every detail has been worked out skillfully by engineers of the Parker Rust-Proof Co., Detroit, to reproduce accurately the various mechanical operations included in the application of rust proofing to fenders and other sheet metal parts, as well as the subsequent enamel coats which are applied over it. Exhibit is illustrated above.

The installation is 23 feet long and 2½ feet wide. On one side are shown in the order named a tank of alkaline cleaning solution, two spray rinse tanks, the bonderizing tank, a spray rinse, a dip rinse and a drying oven.

These tanks are all served by 150 feet of monorail conveyor on which the miniature parts are suspended. The front fenders, which are the largest pieces on the car, are 4¾ inches long and all other units are in proportion. These little pieces are so attractive to visitors as souvenirs that many replacements are necessary. The conveyors carry about 450 pieces at a time.

The other side of the exhibit shows the application of three coats of baked enamel applied to the rust-proofed parts. These enamel coats are applied mechanically in three A-type ovens, which are served by 50 feet of bar conveyor. The whole outfit contains about 150 sprockets and gears and 35 feet of line and jack shafting in various sizes.

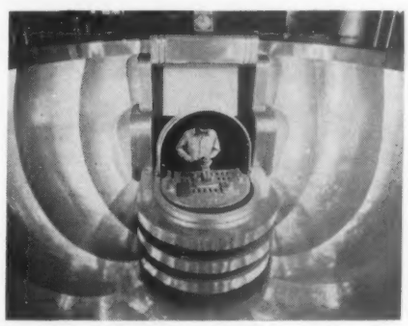
♦ ♦ ♦

Progress in use of electricity is emphasized by the many exhibits in the huge Electrical building where practically all of the electrical devices now in common use are displayed. General Electric Co.'s "House of Magic' is attracting capacity crowds to its demonstration of the latest scientific instruments developed by the industry, such as high frequency coils, photoelectric tube, cathode ray oscillagraph, etc. Westinghouse Electric & Mfg. Co. shows the first commercial induction motor, displayed originally at the 1893 World's Fair, contrasted to motors of the same power and speed as built in 1897, 1905, 1914 and today. A cross section of a 77,000-kilovolt-ampere water-driven generator 28 feet in diameter revolves flush with the floor of the building while overhead is a wood model of a large steam turbine wheel. Application of electric drives in the steel industry is shown by a model of a large twin-motor installation on a blooming mill. Various other types of industrial motors and control also are shown.

♦ ♦ ♦

Continuous demonstrations and motion pictures of oxyacetylene welding and cutting are given in spectacular fashion by the Linde Air Products Co. in a sunken amphitheater located in the exhibits of Union Carbide & Carbon Corp. in the Hall of Science.

Visitors look down into a huge metal bowl flooded with light from concealed sources. First an opening appears in the base of the bowl and a workman is seen actually using the oxyacetylene welding and cutting outfit. After each demonstration, the lights fade out, the operator disappears and a short motion picture is thrown on a screen to illustrate other uses of the equipment.



Those who now operate welding outfits can learn of new applications and those not familiar with the process can absorb sound established information about its uses.

♦ ♦ ♦

Visitors to the exposition, familiar with methods and technique of vitreous enameling, are attracted to the unique exhibit of the Republic Steel Corp., Youngstown, O., in the Porcelain Enamel Parade. This exhibit is composed entirely of porcelain enamel fused on the company's enameling iron, trimmed with its polished 18-8 stainless steel.

It is chair-like in shape with porcelain enamel tile forming the floor and riser, and a single sheet, 54 x 60 inches, serving as the back wall. Upon this sheet is a large reproduction of an oil painting representing a Republic ore boat being unloaded at a Great Lakes ore dock, executed entirely in porcelain enamel in 32 separate and distinct colors—a feat which any enameler will appreciate readily.

The picture was executed by the Ceramic Color & Chemical Mfg. Co.,

New Brighton, Pa., in collaboration with Ingram-Richardson Mfg. Co., Beaver Falls, Pa. All of the 32 colors were applied with an ordinary writing pen, since brushes or stencils can not be used. It was necessary to apply about 8 to 10 colors and then burn the sheet at 1550 degrees Fahr. for approximately 3 minutes. Than 10 or 12 additional colors were applied and the sheet burned again.

Subsequent operations were shading different parts of the picture, followed by firing, and general retouching to obtain the particularly delicate hues of the original painting, followed by another firing; in all, the picture received 10 burnings in addition to the test firing.

The small tile forming the floor and riser are a product of the Youngstown Pressed Steel Co., Warren, O. The floor is done in white with the trademark and border in green. The riser is green and supports a giant replica of a Republic letterhead bearing a message from N. J. Clarke, vice president in charge of sales. The letter is a product of the Ingram-Richardson Company.

"Motors may all look pretty much alike, Lad — but there's a whale of difference in the way they operate.

"For example, take a look at this Lincoln 'Linc-Weld' driving this bulldozer. The plant super tells me he gets about a pound of torque per ampere of current from this 'Linc-Weld' Type DL. That's more, he says, than he can get from others. Says that's the reason you can go to a smaller size in a 'Linc-Weld' — save money on the initial cost of the motor, and starter as well."

"Are you telling me, Pop? The superiorities of the 'Linc-Weld' half-high torque type DL's are typical of the better operating characteristics of Lincoln's entire line of A.C. motors.

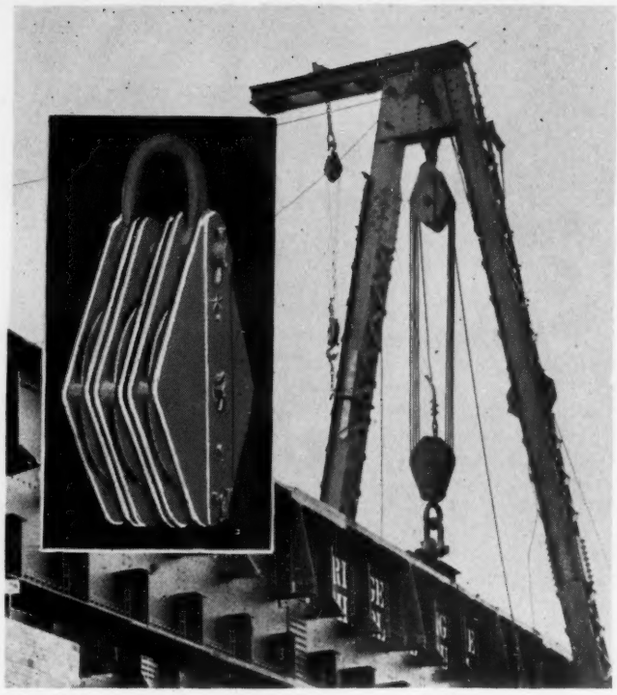
"Their steel construction gives them large air passages . . . cooler operation . . . greater overload capacity.

"These dollar saving advantages in the form of longer motor life, lower maintenance costs and less power consumption are yours when you buy 'Linc-Weld' motors — built by

LINCOLN

THE LINCOLN ELECTRIC COMPANY, CLEVELAND, OHIO

Manufacturers of *"Linc-Weld"* Motors and *"Shield-Arc"* Welders M-12



TACKLE blocks, now largely of steel, find universal application in structural work. (Inset) A typical block, with three 16-inch diameter sheaves, weighs about 400 pounds

LARGE USES OF STEEL IN SMALL WAYS

248th Article ◆ Tackle Blocks

TACKLE blocks, one of the oldest mechanical devices employed by man, still find common usage in many industries for lifting and hauling purposes. The principle of the block has remained essentially unchanged; blocks employed on ships during the time of Columbus still are made today, differing only in the materials used in the manufacture of certain parts. Different varieties of blocks have been developed also, their sizes and capacities have been greatly enlarged and steel and iron have replaced wood to a large extent as the material from which blocks are made.

A wide range of types and sizes now is available, varying from small single-sheave units weighing a few pounds to huge blocks of more than a ton in weight, such as those employed in oil well drilling work. Structural steel erectors, steel companies and other manufacturing industries operating overhead cranes depend upon large tackle blocks to aid in moving bulky materials. Power shovels incorporate the principle of the block in order to provide their tremendous lifting and moving capacity.

Tackle blocks usually comprise one or more pulleys or sheaves, supported by a shell to which is attached a shackle or hook. Wood shells still are used in making certain types of blocks, steel being employed for larger sizes. On larger installations as many as nine sheaves have been incorporated in a block, although three or four-fold sheave installations are more common.

Details of Assembly

A typical block, shown in the inset in the illustration above, having three sheaves 16 inches in diameter and designed to operate with 1-inch diameter wire rope, weighs about 400 pounds, principally steel. Gray iron sheaves commonly are used, some being made of cast steel. The shell is of steel plates, square or diamond-shaped, two being assembled between each of the sheaves. Heavy bar steel straps extend from top to bottom of the block and furnish support for the center pin on which the sheaves revolve. The straps are affixed to an end pin also which provides an anchorage for the shackle. Pins are made of cold-finished steel. Shell plates are carbon steel as are the straps, although wrought iron is used for the latter in some instances. Smaller pins through the other two corners of the shell plates give rigidity to the unit. These heavy blocks commonly are made with sheaves ranging from 8 to 24 inches in diameter. The shackle is a steel forging, while for some applications a round hook is substituted. Graphite bronze bearings are employed for some blocks to lubricate the sheave center pin, with antifriction bearings finding occasional application.

Many variations are noted in design of similar blocks as well as in the different types which are built. The steel side straps in some instances are in the form of a single U-shaped bar which, instead of a pin through the shell plates, provides the support for the shackle. The shackle or hook may be arranged to swing or turn or both, while the shell may be oval instead of diamond shaped. Another common type of block is the snatch block which incorporates a system for unlatching one side of the shell in order to permit the rope to be removed from the sheave without threading its complete length through the block. Among other varieties are ballast, cargo, cheek, coal hoisting, derrick dock, gin, hay log jammer, lumberman's, oil well and skidder blocks. All of these, while similar in general design, differ slightly in certain features according to their particular applications.

Phototube Unit Measures Density of Smoke

Photoelectric equipment for indicating and recording the density of smoke passing through stacks or breechings of power and heating plants has been announced by General Electric Co., Schenectady, N. Y. Changes in smoke density are indicated on a meter and a running record may be obtained by addition of a recording instrument.

Essential elements of the apparatus are a light source and a photoelectric relay unit. These are designed for mounting on opposite sides of the stack so that the light beam from the light source passes through the stack and falls on the phototube. With no smoke, the full intensity of the light is directed on the tube and the instrument registers zero smoke density. As the density increases, the phototube receives less light from the source and the instrument indicates the increase.

Lenses are provided in front of the phototube and light source and are easily accessible for cleaning. Both elements are enclosed in cast-iron cases for durability and also for protection against dust and moisture. An adjustable electrical contact for operating an alarm circuit is provided and can be adjusted to any point between 20 and 60 per cent of full smoke density.

Making the Most of

METHODS AND MATERIALS

MOLYBDENUM heating elements are being used in electric furnaces to permit temperatures higher than can be obtained with nickel-chrome resistors. With the molybdenum elements it is possible to produce temperatures up to 2600 degrees Fahr. It is necessary, however, that the atmosphere in the furnace be free of oxygen and also gas which would crack up and yield oxygen; in other words, the atmosphere must comprise pure hydrogen and nitrogen. This condition is necessary because of the instantaneous oxidation of molybdenum when exposed to oxygen at high temperatures. The furnaces equipped with molybdenum elements are used for heating and not melting. Some of these furnaces are being used in actual production work.

$ $ $

Clearance between punch and die diameters is based upon a percentage of stock thickness, this percentage varying with the kind of material and size of blank. For very small, thin pieces, the clearance is little or nothing; for larger work of thicker material, it becomes usually from 5 to 7 per cent of the stock thickness. This may be increased for still heavier gages. Harder materials like hard rolled steel are allowed more leeway than the softer stock such as brass, soft steel, and the like.

$ $ $

TO OBTAIN best results in chromium plating tools and gages, care should be exercised in the matter of hardness and heat treatment. Work frequently has been returned from the chrome bath cracked or broken, although no defects were apparent before plating. This sometimes has discouraged users from further trials of the process. The explanation for breakage is that the defects were present in the form of stresses in the parts before plating and were brought out by the electrical disturbance in the tank. Little heat is used in plating, seldom over 120 degrees Fahr., and this is not sufficient to distort or set up stresses in any generally used steel. Good practice is to draw all parts to relieve stresses before plating. This serves two purposes; first, assuring that the part will not crack in plating; and second and even more important, preventing future distortion.

$ $ $

The hardfacing process increased the life of steel pug mill knives in an Ohio plant from 1 to 3 months. These knives are faced with stellite at a total cost of approximately 50 cents apiece.

$ $ $

In connection with the assembly of the float on an evaporator unit, a large electric refrigerator manufacturer inserts a 5/16-inch outside diameter copper tube in a small bronze casting and silver solders them together. A small amount of scale or oxide forming inside the tube will enter into the needle valve seat in the float and interfere seriously with the mechanism, consequently nitrogen under a very low pressure is made to flow through the tubing and casting while the soldering is being performed. This has eliminated all scale and oxide.

$ $ $

For replacing propeller shafts in fishing boats on the New England Coast, 3½ per cent nickel steel has been specified increasingly in recent months.

$ $ $

Coils made of welded monel metal tubing are finding use for cooling beer. Tubing of ½-inch diameter and 0.032-inch wall thickness is proving suitable and offers several advantages. Its cost is near the range of the block tin coil and it combines flexibility with great strength and resistance to wear and abrasion. Large cakes of ice can be dropped on it without damage and it can not be harmed by slipping of the ice pick. Monel metal protects both the flavor and color of beer.

$ $ $

Where an acetylene generator is operated in excess of its inherent capacity, the welding or cutting torch is likely to become clogged and inefficient through no fault of the carbide, but solely as a result of forcing and overheating.

$ $ $

IN VISITING a western manufacturing plant, a representative of an oxy-acetylene welding company noticed several damaged cast-iron motor heads. Inquiry developed that the castings were so badly damaged that they would go to the scrap pile. With consent of the superintendent, the welding company's representative set up his service outfit and reclaimed several heads to prove it could be done. The superintendent had his own welders reclaim the balance and now has adopted the practice of having all damaged heads salvaged by the torch. The saving has been considerable.

$ $ $

A large spider in a stone crusher in use at a gravel pit broke, putting the machine out of commission. Welding servicemen applied a patch 1¼ inches thick to fill in the broken place and to cover a section worn undersize. The job required about 12 lineal feet of bronze welding and took 14 man-hours actual welding time. With a new casting costing $1400, the old one was salvaged at only a fraction of that amount.

$ $ $

An eastern company has developed an acid-core solder suitable for use with stainless steel, chromium plate and monel metal. It is claimed to be economical and to have strength of bond. Considerable difficulty sometimes is experienced in soldering stainless steels for some fabricated work because frequently a separate and expensive acid is required. Special solder formulas often are limited in application. As many as three different kinds of fluxes and solders have been used by one refrigerator manufacturer because each has a narrow field of usefulness.

FOR IMMEDIATE SHIPMENT !!

In the days when orders were sparse, we were annealing and drawing wire for reserve stock. Already our optimism has been justified.

We knew the day would come when plants would want material in a hurry. We are ready to fill many orders for immediate shipment and others in less than usual time.

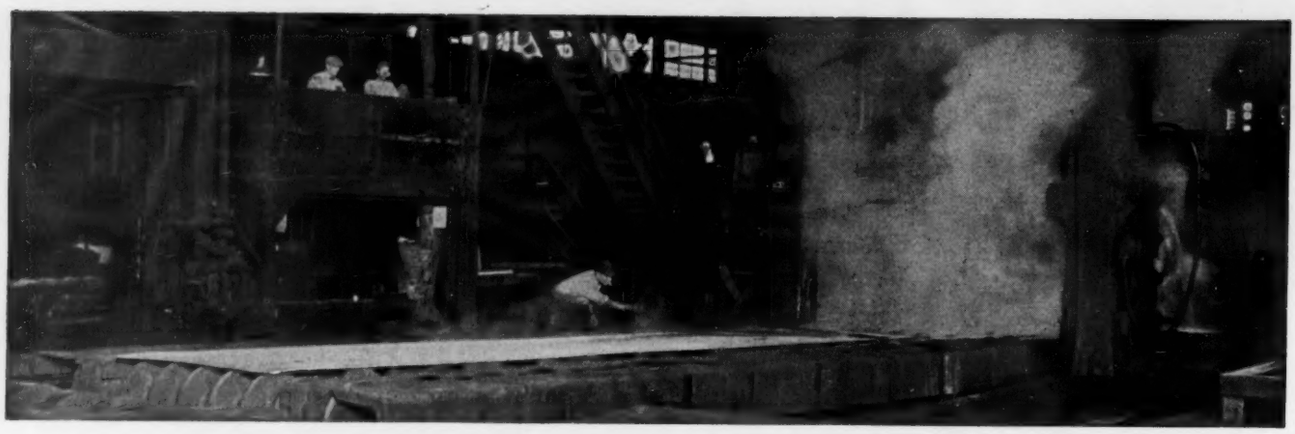
This quick service, at a time when material is needed in a hurry, is possible because we have direct control of basic steel from our own furnaces and rolling mills. This allows us to make quick deliveries of strip, rods or wire to your specifications. Reserve stocks of standard sizes and analysis permit immediate shipment.

Try our emergency service which does not neglect quality to make rush delivery.

Washburn Wire Co., Phillipsdale, R. I.
Washburn Wire Co., Inc., New York City

WASHBURN

CLEAN UNIFORM BILLETS - STRIP - RECTANGULAR, ROUND, FLAT RODS
TEMPERED AND UNTEMPERED FLAT AND ROUND HIGH CARBON WIRES



PROGRESS IN STEELMAKING

WHEN setting the stopper assembly in steelworks ladles, at least 1/16-inch per foot of sleeves should be allowed to compensate for the expansion of the sleeves. This arrangement will prevent cracked sleeves and lost stoppers.

CHEMICAL reduction of rust on steel surfaces, prevention of further oxidation and serving as a binder between the metal and any subsequent application of paint are claimed for a newly devised rust removing liquid.

♦ ♦ ♦

Steel mill rolls and coolants during the grinding process should be at room temperature; otherwise, errors in the dimensions will occur because of the unequal expansion. Should the roll while being ground become warmer than the coolant either the grinding wheel or its operation is faulty.

♦ ♦ ♦

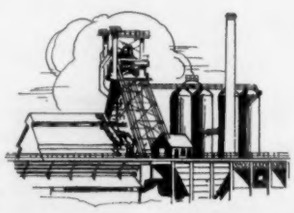
Transferring heated ingots from the soaking pits to the blooming mill approach table is being accomplished at a mill in the Pittsburgh district by a remotely controlled car which is accelerated and decelerated automatically. The car with its load is accelerated to 12 miles an hour in four seconds, is retarded to 2 miles an hour upon approaching the stopping point and is spotted within 6 inches of the desired destination where an electrically-driven pusher moves the ingot on the approach table.

♦ ♦ ♦

Melting points and viscosity of metals and alloys are being determined at a plant in the Pittsburgh district by an ingeneous micropyrometer now under development. A minute piece of metal to be tested is placed on a platinum strip, suspended from two terminals, and low-voltage current applied. The heating chamber is gas-tight and observation is made by a microscope through a quartz window. When fusion begins, the current is shut off. Temperature automatically is recorded by a radiation pyrometer.

♦ ♦ ♦

Effecting a change of direction in the movement of rolled materials at a continuous sheet mill in Ohio is accomplished in a simple manner. Steel chains are suspended over the runout table of the blooming mill and when a finished rolled slab comes in contact with these, it causes an electric circuit to be completed. This is followed by the actuation of transfer equipment which moves the slab broadside from the runout table of the blooming mill to a reheating furnace located on the opposite side of the mill building.



OBSERVING the entire charging process at modern blast furnaces has been made possible by a recent German development of a luminous signal cabinet which includes a sheet steel box picturing the top of the furnace. Panes of ground glass form the panels, and lamps behind them light or go out in accordance with the proceedings. The two skip tracks are shown with light indicating the top and bottom position of skips as well as the up and down movement. The position of the large and small bells and the movement of the rotary hopper also are depicted. Two sets of lights are provided for the gage rods to visualize the level of the burden in the furnace. Operation of the coke bin doors and other stockhouse equipment also are indicated.

HIGHLY refined mineral oils to which specially treated aluminum soap is added now are available for traveling cranes in steel mill service. The lubricating material is claimed to maintain a strong film between the frictional surfaces and to possess antileakage, cohesive and tenacious properties.

♦ ♦ ♦

Alloy steel tubing containing 5 per cent chromium is finding wider usage for cracking stills in the oil industry. This grade of tubing, which withstands high pressures and temperatures, has effected a decrease in the cracking time and an increase in the production. Plain-carbon steel tubes frequently last for a 300-hour campaign, compared with a run of 9200 hours for tubes fabricated from 5 per cent chromium and 1 per cent tungsten steel.

♦ ♦ ♦

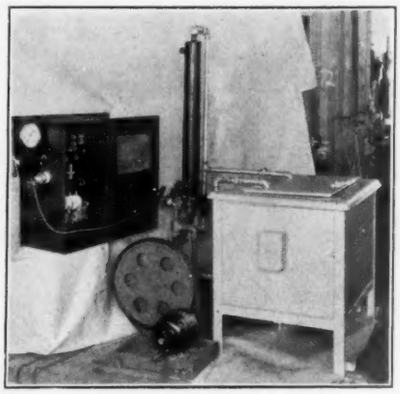
Through the medium of the electric furnace it is claimed a new type of metal is available presenting microstructure of cast iron and the physical properties of steel. The carbon content of the metal is given as 1.80 per cent and the silicon content as 1.60 per cent. It is stated that the metal is cast readily and later may be forged or rolled.

NEW EQUIPMENT

PRODUCTION FABRICATION TREATMENT FINISHING

Temperature Controlled In Oil Tempering Bath

Harold E. Trent Co., 618-640 North Fifty-fourth street, Philadelphia, has developed an electrically heated oil tempering bath with oil circulating system, as shown in the accompanying illustration. This tempering bath is provided with a circulating pump, which circulates the oil in the bath. If the oil rises to too high a temperature, the oil is bypassed through



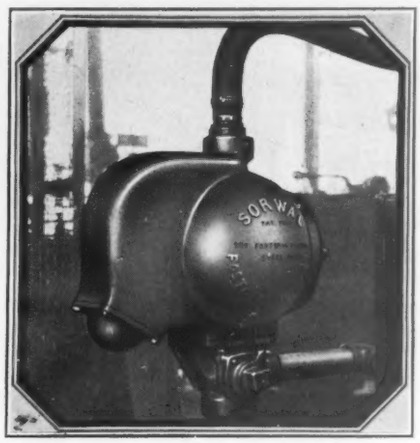
Electrically heated oil tempering bath manufactured by Harold E. Trent Co.

a water cooling column until the temperature is brought down to the required value. In addition to this, a temperature control gage, which can be set to the required value, functioning through a control panel, is supplied. By this means, the correct temperature of the oil is obtainable.

◆

Coolant Filter Meets New Finishing Requirements

Fostoria Pressed Steel Corp., Fostoria, O., is introducing a coolant filter, shown herewith, for use in wet grinding, lapping and honing operations. Coolant is forced by a pump through a globe containing nonmetallic filtering material which separates all particles or metal or abrasive. The unit maintains a stream of clean coolant flowing over the work at all times. By a simple turn of the valve from "grind" position to "flush," the coolant flows through the main filtering chamber and out a drain pipe to the receiving tank. At



Sorwal coolant filter designed by Fostoria Pressed Steel Corp.

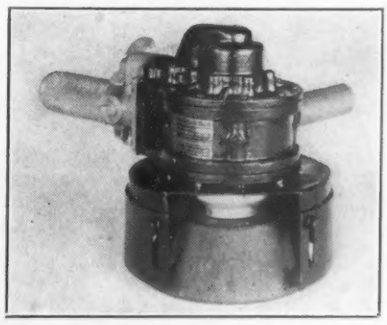
the same time a wrench placed on the end of a shaft extending through the main chamber is moved back and forth, compressing and agitating the filtering material by means of long rods placed at right angles on the shaft. This thoroughly cleanses the main filter chamber.

◆

Designs Grinder, Disk Sander For Specific Uses

Rotor Air Tool Co., 5704 Carnegie avenue, Cleveland, is marketing a portable surface grinder and disk sander, shown herewith, manufactured in several models for various uses, each with a fixed speed best suited for the purpose.

For grinding, the 5500 revolutions per minute model is recommended. On flat surfaces with a 6 x 1½-inch straight side cup wheel it makes a smooth even surface. On welds the



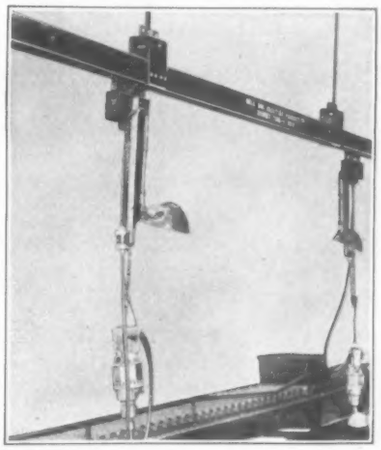
Portable surface grinder, disk sander marketed by Rotor Air Tool Co.

6/4 x 2 flaring cup wheel is used as it enables the operator to watch closely the removal of the excess metal and grind it down to a level with the adjoining metal. A 3600 revolutions per minute model is used with cup shape wire brush for removing rust and scale from pipe, structural iron, etc. When a fine finish is desired on metal surfaces, this can be obtained quickly with the 4700 revolutions per minute model equipped with a 9-inch flexible sanding pad and abrasive disks which are available in a wide range of grit sizes.

◆

Mobility Provided By Trolley Duct Electric System

Bulldog Electric Products Co., 7610 Jos. Campau avenue, Detroit, recently introduced the trolley duct system, shown herewith, which provides a mobile arrangement for con-



Trol-E-Duct system introduced by Bulldog Electric Products Co.

veying electric current to moving or portable electrical devices such as lamps, drills, screw drivers, wrenches, shears, cranes, hoists, etc. It consists essentially of standardized self-contained sectional units of steel duct, enclosing insulated busbars which distribute electric current through trolleys. Frictionless movement of the carriage is insured by ball bearings, while at the same time good electrical contact is maintained throughout. The new trolley duct system is economically adaptable to the small shop or large plants.

"The best FENDER SHEETS we can Buy"

A LEADING automotive manufacturer recently made the statement that Republic fender sheets are the finest they are able to buy. And judging by the number of users, other car makers must feel the same way about it.

Republic has devoted extensive research to the development of better fender sheets—sheets with far above average drawing qualities, and a high finish. The time and money spent on this development has kept Republic fender sheets apace with the demands of designers. And now that streamlining has made fenders such an important part of the modern car, the qualities of Republic fender sheets assume greater importance from the standpoint of economical production. ¶ If you are not satisfied with the results you are now obtaining—remember this—you are not experimenting when you use Republic fender sheets.

REPUBLIC STEEL
CORPORATION
GENERAL OFFICES: YOUNGSTOWN, OHIO

Prices Clarified, Free Market Is Returning

Barring $2 Rise in Hot Strip and No. 10 Sheets, and $3 in Cold Strip, Prices Are Continued—Steel Rate Down to 42—New Extras Raise Net Prices to Comsumers

EXTENSION of current iron and steel prices, except for a few advances, through the fourth quarter and the filing and dissemination of new extras and differentials in conformity with the steel code have removed most of the artificial barriers to trading.

In a broad sense, the steel market this week again becomes a free one, and while withdrawals from stocks will prevent specifications being exactly synonymous with consumptive requirements, the trend of demand will be significant and provide the first gage of the fall market.

Some portions of the industry remain confident of good fall business; others can find nothing assuring in an analysis of the four leading outlets. But there is a growing enthusiasm for the steel code and its possibilities for rationalizing competition.

Two industries—container and automobile—largely ran the steel rate up from 14 per cent in late March to a peak of 58 per cent in mid-July. Tin plate mills are booked through October. The automobile industry, however, is ordering only final materials needed to complete runs on present models, and a dead spot nears.

Improvement this fall thus becomes chiefly the responsibility of the railroads and the construction and pipeline industries. Financing for sizable pipelines is not in sight. The public works program figures more extensively in prospective structural steel tonnage, but private projects are negligible. Some revival of railroad buying is under consideration at Washington, but at least 60 days will elapse before orders. The President will ask rail producers to lower their price to stimulate buying.

Largest specific business of the week was the Chesapeake & Ohio's formal distribution of 31,481 tons of rails, the United States Steel Corp. closing on 16,350 tons, Inland Steel Co. on 10,672 and Bethlehem Steel Co. on 4459.

Under the spur of a quickened public works administration at Washington, bids will be opened late this month on 16,000 tons for Trlborough bridge towers in New York; 12,375 tons for the Grand island bridges at Buffalo on Sept. 14; 9000 tons of structurals and castings for Mississippi river lock and dam work in addition to 10,000 tons of piling; and 5000 tons for various Middle West highway bridges.

Sheet specifications have broadened somewhat as buyers are taking out third quarter contracts fully. Pig iron is moving, partially into stock, at not far from the year's peak. In the East, 50,000 tons may be placed within a month for segments for the New York vehicular tunnel.

Rarely have consumers of steelworks scrap abstained so solidly from the market, the result being further sentimental weakness in prices. The advances of 50 cents to $1 in pig iron, however, are bullish factors for the long pull in scrap. Export sales of scrap, chiefly to Italy, total 20,000 tons. Coke prices may advance.

Steel output dropped 3 points last week to 42 per cent. Buffalo increased 7 points to 48 per cent; New England, Detroit and New England held at 85, 55 and 37, respectively; other districts declined 1 to 7 points, Pittsburgh now being 35, Chicago and Youngstown 45, Birmingham 50, Cleveland 56, Wheeling 75, Lorain 66.

In the past week No. 10 gage sheets and hot-rolled strip were advanced $2 per ton for the fourth quarter, and cold-rolled strip $3. Heavy finished steel was continued at 1.60c, Pittsburgh, and 1.65c, Chicago, with all other tonnage products likewise extended. Bethlehem last week was made an alloy bar base, at 2.55c.

However, considering the return to full or revised chemical, size and quantity extras, many consumers for the fourth quarter will pay $3 to $5 per ton more than the recent market to them.

STEEL's composites are unchanged, at $31.23 for iron and steel, $48.30 for finished steel and $11 for scrap.

Composite Market Averages

	Sept. 9	Sept. 2	One Month Ago Aug., 1933	Three Months Ago June, 1933	One Year Ago Sept., 1932	Ten Years Ago Sept., 1923
Iron and Steel Composite	$31.23	$31.23	$30.04	$28.73	$29.32	$44.64
Finished Steel Composite	48.30	48.30	11.57	9.55	7.04	68.05
Steelworks Scrap Composite	11.00	11.00	447.50	45.30	47.50	68.05

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, tin plate, nails, sheets, plates, shapes, bars, and black pipe. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

COMPARATIVE PRICES OF IRON, STEEL AND COKE

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

	Sept. 9, 1933	Aug. 1933	June 1933	Sept. 1932
Pig Iron				
Bessemer, del. Pittsburgh	19.26	18.26	17.26	15.76
Basic, valley	17.00	16.00	15.00	14.00
Basic, eastern, del. eastern Pa.	18.19	17.38	16.19	13.75
No. 2 foundry, del. Pittsburgh	18.76	17.76	16.76	15.76
No. 2 foundry, Chicago	17.50	17.00	16.00	15.50
*Southern No. 2, Birmingham	13.50	13.00	12.00	11.00
**No. 2X, Eastern, del. Phila.	18.63	17.88	16.76	14.26
Malleable, valley	17.50	16.50	15.50	14.50
Malleable, Chicago	17.50	17.00	16.00	15.50
Lake Superior charcoal, del. Chi.	23.54	23.04	23.04	23.04
Gray forge, del. Pittsburgh	18.13	17.13	16.63	15.63
Ferromanganese, del. Pittsburgh	87.24	87.24	73.24	73.24

*1.75-2.25 silicon. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

Coke				
Connellsville, furnace, ovens	2.50	2.75	1.80	2.00
Connellsville, foundry, ovens	3.00	3.10	2.40	2.75
Semifinished Material				
Sheet bars, open-hearth, Youngs.	26.00	26.00	26.00	26.00
Sheet bars, open-hearth, Pitts.	26.00	26.00	26.00	26.00
Billets, open-hearth, Pittsburgh	26.00	26.00	26.00	26.00
Wire rods, Pittsburgh	35.00	35.00	35.00	37.00

	Sept. 9, 1933	Aug. 1933	June 1933	Sept. 1932
Finished Material				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.65	1.70	1.70	1.70
Steel bars, Philadelphia	1.91	1.91	1.91	1.91
Iron bars, Chicago	1.60	1.65	1.65	1.65
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.81 ½	1.81½	1.65	1.75
Shapes, Chicago	1.65	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.55	1.60
Tank plates, Philadelphia	1.79 ½	1.79½	1.49½	1.79½
Tank plates, Chicago	1.65	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.65	1.65	1.65	1.70
Sheets, No. 24, hot ann., Pitts.	2.25	2.25	2.10	2.10
Sheets, No. 24, galvan., Pitts.	2.85	2.85	2.70	2.75
Sheets, No. 10 blue anneal., Gary	1.90	1.95	1.95	1.85
Sheets, No. 24 hot ann., Gary	2.35	2.40	2.40	2.25
Sheets, No. 24 galvan., Gary	2.95	3.00	3.00	2.90
Plain wire, Pittsburgh	2.10	2.10	2.10	2.20
Wire nails, Pittsburgh	2.10	2.10	1.85	1.95
Tin plate, per base box, Pitts.	4.65	4.25	4.25	4.75
Scrap				
Heavy melting steel, Pitts	$13.25	13.75	11.65	9.50
Heavy melting steel, eastern Pa.	11.00	12.00	9.50	7.25
Heavy melting steel, Chicago	10.00	10.40	9.25	5.75
No. 1 wrought, eastern Pa.	11.50	13.00	10.25	7.25
No 1 wrought, Chicago	9.25	10.35	8.10	5.60
Rails for rolling, Chicago	11.25	11.25	10.25	7.00

CURRENT FINISHED STEEL PRICES

Prices revised, so far as possible, in conformity with new schedules.

Sheet Steel

HOT ROLLED No. 10
(24 to 48 inches wide)

Pittsburgh, base	1.65c to 1.75c
Gary, base	1.75c
Chicago, del.	1.785c
New York, del.	2.00c
Birm., base	1.80c
Phila., del.	1.96c
St. Louis, del.	1.84c

HOT ROLLED ANN. No. 10

Pittsburgh, base	1.80c to 1.90c
Gary, base	1.90c
Chicago, del.	1.935c
Phila., del.	2.11c
New York, del.	2.15c
St. Louis, del.	1.99c
Birm., base	1.95c
San Fran., c.i.f.	2.27½c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.25c
Gary, base	2.35c
Chicago, del.	2.385c
New York, del.	2.60c
Phila., del.	2.56c
Birm., base	2.40c
St. Louis, del.	2.59c
San Fran., c.i.f.	2.90c

GALVANIZED No. 24

Pittsburgh, base	2.85c
Gary, base	2.95c
Chicago, del.	2.985c
Phila., del.	3.16c
New York, del.	3.20c
Birm., base	3.00c
St. Louis, del.	3.19c
San Fran., c.i.f.	3.50c

TIN MILL BLACK No. 28

Pittsburgh, base	2.50c
Gary, base	2.60c
St. Louis, del.	2.84c

COLD ROLLED No. 10

Pittsburgh, base	2.30c
Gary, base	2.40c
Philadelphia, del.	2.61c
New York, del.	2.65c

No. 20

COLD ROLLED No. 20

Pittsburgh, base	2.75c
Gary, base	2.85c
Philadelphia, del.	3.06c
New York, del.	3.10c

ENAMELING SHEETS

Pitts., No. 10	2.40c to 2.45c
Pitts., No. 20	2.90c

Tin and Terne Plate

Per 100-lb. box, Pittsburgh

Tin plate, coke base, contract	$4.65
Do., stock	4.05
Long ternes, No. 24 unassorted	2.90c

Gary base, 10 cents higher.

Corrosion, Heat Resistant Alloys

Base, Pittsburgh

18% chrome, 8% nickel sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold Strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Steel Plates

Pittsburgh, base	1.60c
New York del.	1.90c
Phila., del.	1.79½c
Boston, del.	2.02c
Buffalo, del.	1.85½c
Chicago, base	1.65c
Cleveland, del.	1.80½c
Birmingham, base	1.75c
Coatesville, base	1.70c
Sparrows Point, base	1.70c
Pac. Coast, c.i.f.	2.15c
St. Louis, del.	1.94c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.81½c
New York, del	1.87c
Boston, del.	2.00½c
Bethlehem base	1.70c
Chicago, base	1.65c
Cleveland, del.	1.80½c
Lackawan., base	1.70c
Birmingham, base	1.75c
Pacific Coast, c.i.f.	2.15c
Do., wide flange	2.25c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.65c
Birmingham, base	1.75c
Lackawan., base	1.70c
Pacific Coast ports, c.i.f.	2.10c
Cleveland, base	1.65c
Philadelphia, del.	1.91c
New York, del.	1.95c
Pitts., forg. qual.	1.75 and 1.85c

RAIL STEEL

Pittsburgh, base	1.75c
Chicago	1.80c

IRON

Chicago, base	1.60c
Philadelphia, base	1.60c
Pitts., refined	2.70c to 4.20c

REINFORCING

New billet steel, Chi., Young., Buff., Cleve., Birm. (cut lengths	1.95c
Pitts., cut lengths	1.90c
Rail steel, Chi.	1.80c
Phila., cut lengths	2.21c
Phila., rail steel	2.06c

Wire Products

(Prices apply on carload lots. Mixed carloads 10 cents higher; joint carloads up 20 cents; less carloads up 30 cents. Nail extras subject to 10 per cent discount on straight or mixed carload shiped to single consignee.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$2.10
Cement coated nails	2.10
Galvanized nails	3.60

(Per pound)

Polished staples	2.80c
Galvanized fence staples	3.05c
Barbed wire, gal.	2.60c
Annealed fence wire	2.25c
Galvanized wire	2.60c
Woven wire fencing (base column, c.l.)	$55.00

(To Manufacturing Trade)

Plain wire, 6-9 ga 2.10c

Anderson, Ind., and Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, $2 higher; Fairfield, Ala., $3 higher.

Spring wire 3.10c

Chicago and Waukegan $1 higher, Worcester $2 higher.

Cold-Finished Bars

Base Pitts., one size, shape, grade, shipment at one time to one destination

10,000 to 19,999 lbs	1.95c
20,000 to 59,999 lbs	1.90c
60,000 to 99,999 lbs	1.85c
100,000 lbs. and over	1.82½c

Chicago, Cleveland, Buffalo 5c higher; Detroit, 20c; eastern Michigan 25c.

Shafting

(Turned and ground)
Cumberland, Md., base

1⅛-inch	3.25c
1¼ to 1½-inch	2.75c
1⅝ to 1⅞-inch	2.60c
1¹⁵⁄₁₆ to 2⅞-inch	2.45c
2¹⁵⁄₁₆ to 6-inch	2.30c

Alloy Steel

Hot rolled, f.o.b. Pittsburgh, Buffalo, Chicago and Massillon, O., 2.45c. F.o.b. Bethlehem, Pa., 2.55c. Differentials to various classes of consumers.

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	3100	0.55
2100	0.55	3200	1.35
2300	1.50	3300	3.30
2500	2.25	3400	3.20

4100 .15 to .25 Mo	0.50
4600 .20 to .30 Mo. 1.25-1.75 Ni.	1.05
5100 .80-1.10 Cr.	0.45
5100 Cr. spring	0.20
6100 bars	1.20
6100 spring	0.95
Cr., Ni., Van.	1.50
Carbon van.	0.95
9250 (flats)	0.25
9250 (rds., sq.)	0.50

Strip, Hoops, Bands

Hot-rolled strip up to 23 15/16-in. wide, Pitts.	1.65c to 1.75c
Do., Chicago	1.75c to 1.85c
Do., del. Phila.	1.96c to 2.06c
Do., del. N. Y.	2.00c to 2.10c
Cooperage hoop, Pittsburgh	1.75c to 1.85c
Do., Chicago	1.85c to 1.90c
Cold-rolled strip Pitts., Cleve.	2.25c to 2.40c
Worcester, 3 tons or over	2.45c to 2.60c

Rails, Track Material

Stand. rails, mill	$40.00
Relaying rails, Pitts., 20-45 lbs.	$23.00
50 to 75	$20.00
80 to 100	$23.00 to 24.00
Light rails, 60 lb. or less, billet qual., Pitts.	$34.00
Do., reroll. qual.	$32.00
Angle bars, mills	2.55c
Spikes, R. R., Pitts.	2.40c
Track bolts, base	3.40c
Tie plates, Pitts.	1.90c
Tie plates, Chi.	1.90c

Base, railroad spikes 200 kegs or more; base tie plates, 20 tons or more; differentials for less.

Rivets, Wrought Washers

Struc. c.l., Pitts-Cleve.	2.50c
Struc., c.l., Chi.	2.60c
7/16-in. & smaller, Pitts., Chi., Cleve.	70, 10 and 5 off
Washers, c.l., Pitts. and Chicago	6.25 off

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots, Dec. 1, 1932, lists.

CARRIAGE BOLTS

All sizes, cut thread	73 off
Rolled thread, ½ x 6 and smaller	73 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts	73 off
Tire bolts	60 off
Stove bolts, 72½-25-10 off in pkgs.; 85 off in bulk, 5000 or more of a size.	
Rolled thread machine bolts, ½ x 6 and smaller, 73 off.	
Step Bolts	70 off
Elevator bolts	70 off

NUTS

Semifinished	73 off

HEXAGON CAP SCREWS

Milled	85 off
Upset 1-in., smaller	85-10 off

SQUARE HEAD SET SCREWS

Upset, 1-in., smaller	80 off
Upset, larger than 1-in.	80 off
Headless set screws	75-10 off

Cut Nails, Piling

Cut nails, Pitts.; (10% discount on size extras)	$2.75
Do. less carloads, 5 kegs or more; no discount on size extras	$3.00
Do., less than 5 kegs; no discount on size extras	$3.15
Steel piling, Pitts.	1.90c
Steel piling, Buff.	2.00c
Steel piling, Chi.	2.00c

Pipe and Tubing

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pittsburgh and Lorain, O., to consumers in carloads, Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago delivered, 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

Steel

In.	Blk.	Gal.
¼ and ⅜	57	38½
½	62	50½
¾	65½	55½
1—3	67½	58½

Iron

½	31½	15
¾	36½	20½
1—1¼	39½	25½
2	41½	26

LAP WELD

Steel

2	63½	54½
2½—3	66½	57½
3½—6	68½	59½
7 and 8	67½	57½
9 and 10	67	57

Iron

2	37	22½
2½—3½	38	25
4—8	49	28½
9—12	38	24½

LINE PIPE

Steel

⅛-inch, butt weld	50½
¼—⅜, butt weld	56
½, butt weld	61
¾, butt weld	64½
1—3, butt weld	66½
2-inch, lap weld	62½
2½—3, lap weld	65½
3½—6, lap weld	67½
7—8, lap weld	66½
9—10, lap weld	66
11—12, lap weld	65

Iron

⅛—1½ inch, black and galv. take 4 pts. over; 2½—6 inch 2 pts. over discounts for same sizes, standard pipe list. 8—12 inch no extra. 2-inch line discount unchanged from list prior to April 15, 1933.

BOILER TUBES

C. L. Discounts, f.o.b., Pitts.

Lap Weld Steel		*Charcoal Iron*	
2—2¼	33	1¾	8
2½—2¾	40	2—2¼	13
3	47	2½—2¾	16
3¼—3¾	50	3	17
4	52	3¾—3½	18
4½—6	42	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Quantity discounts, same as for hot rolled below. Charcoal Iron—Under 10,000 pounds; 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

Cold Drawn

2—2¼	27	3¼—3½	44
2½—2¾	34	4	46
3	41	4½, 5, 6	36

(On 1—1¾-inch sizes mechanical tubing discounts apply.)

Hot Rolled

2—2¼	33	3¼—3½	50
2½—2¾	40	4	52
3	47	4½, 5, 6	42

Quantity discounts are: Under 10,000 pounds, 10 points and 5 per cent; 10,000 to 24,999 pounds, 6 points and 5 per cent; 25,000 pounds to carload, 2 points and 5 and 5 per cent; carload and over, base discount and 5 and 5 per cent. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount.

Seamless Tubing

Cold drawn; f.o.b. mill disc.

100 ft. or 150 lbs.	40%
15,000 ft. or 22,500 lbs.	70%

Six to 24-inch, fittings, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$35.00-36.00
4-in., Birm.	38.00-39.00
4-in. Chicago	46.40-47.40
6 to 24-in. Chicago	43.40-44.40
6-in. & over, N. Y.	34.50-36.50
4-in. New York	36.50-38.50

Class A pipe $3 over Class B. Stand. fitgs., Birm. base, $90.00

RAW MATERIAL PRICES

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bess.	$4.30
Mesabi bessemer	4.65
Old range nonbess.	4.65
Mesabi nonbess.	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents, unit, del. E. Pa.

Foundry and basic, 56-63%, con. (nom.)	8.00- 9.00
Cop-free low phos. 58-65% (nom.)	10.00-10.50

FOREIGN ORE

Cents per unit, f.a.s. Atlantic ports (nom.)

Foreign manganiferous ore, 45-55% iron, 6-10% man.	8.50

(*Please turn to next page*)

No. Afr. low phos..	7.00
Swedish basic, 65%	8.00
Swedish lo wphos.	8.50
Spanish, No. Afr. basic, 50 to 60%..	7.00
Tungsten, spot, sh. ton unit, duty pd..	$12.00-12.50
N. F. fdy., 55%.....	7.00
Chrome ore, 48% gross ton c.i.f.....	$17.00-18.00

Manganese Ore

(Nominal)

Prices, not including duty, cents per unit, cargo lots.

Caucasion, 52-55%	22.00
So. African, 52%..	21.00-22.00
So. Afr., 49-51%....	20.00-21.00
Indian, 48-50%	nominal

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pa., Ohio, Ill., Ky., Md., Ga., Mo.	$45.00
Alabama	48.00

Second Quality

Pa., Ohio, Ill., Ky., Md., Mo., Ga., Ala.	40.00

MALLEABLE BUNG BRICK

All bases	50.00

SILICA BRICK

Pennsylvania	$45.00
Joliet E. Chicago ..	54.00
Birmingham, Ala....	55.00

MAGNESITE BRICK

Per Net Ton, 9 x 4½ x 2½

Burned	$65.00
Unburned	55.00

CHROME BRICK

Per Net Ton

F.o.b. ship. point....	$45.00

MAGNESITE

Dead burned grain, Chester, Pa., Baltimore bases, net	40.00
Domes, Chewelah, Wash., base	22.00

Fluorspar

85 to 5 per cent grade

Washed gravel, duty paid, tide, gross ton	$20.00
Washed gravel f.o.b. Ill., Ky., net ton, carloads	$14.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pitts., Chi., Cleve., open-hth. & bess.	$26.00
Philadelphia	31.75
Forging, Pitts., Chi.	31.00

SHEET BARS

Pitts., Cleve., Yong.	26.00
Chicago	26.00
Canton, O.	26.00

SLABS

Pitts., Cleve., Yong.	26.00

WIRE RODS

Pitts., Cleveland	$35.00
Chicago	36.00

SKELP

All grades, Pitts....	1.60c

Coke

Price Per Net Ton

BEEHIVE OVENS

Connellsville fur.....	$2.50- 2.75
Connellsville fdry....	3.00- 3.25
Connell. prem. fdry.	4.50
New River fdry.....	6.00
Wise county fdry..	4.25- 5.00
Wise county fur.....	3.50- 4.25

BY-PRODUCT FOUNDRY

Newark, N. J., del...	8.21- 8.81
Chi. ov., outside del.	8.00
Chicago, del.	8.75
New England, del...	10.00
St. Louis, del.	8.25
Birmingham, ovens	4.50
Indianapolis, del. ..	8.75
Ashland, Ky., Connells., basis	5.50
Portsmouth, ovens, Connell. basis	5.50
Buffalo, ovens	7.50- 8.00
Detroit, ovens	8.00
Philadelphia, del.	8.50

Ferroalloys

(In dollars, except Ferrochrome)

Ferromanganese, 78-82% tidewater, duty pd.	82.00
del. Pitts.	87.24
Spiegeleisen, 19-20%, dom., fur., spot†..	27.00
Ferrosilicon, 50%, frieght all., c. l.....	74.50
Do, less carload..	82.50
Do, 75 per cent....	120-130.00
Spot, $5 a ton higher.	
Silicomang., 2½ carb.	85.00
2% carbon	90.00
1% carbon	100.00
Ferrodhrome, 66-70 chromium, 4-6 carbon, cts. lb. con. del.	9.50
Do, spot del.	10.00
Ferrotungsten, stand., lb. cont.....	1.04 -1.10
Ferrovanadium, 35 to 40%, lb. cont., on analysis	2.60- 2.80
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton....	9.00
Ferrophosphorus, per ton, c. l. 17-19%, Rockdale, Tenn., basis; 18%, $2 unitage	50.00
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $2.75 unitage	65.00
Ferromolybdenum, stand. 50-60%, lb.	0.95
Molybdate, lb. cont.	0.80

†Carloads. Quan. diff. apply.

Pig Iron

(Delivered prices do not include switching charges, except as noted, or freight surcharges. 25-cent differentials apply for each 0.25 silicon above 2.25.)

Gross Tons

	No. 2 Fdry.	Malleable	Basic	Bessemer
Basing Points:				
Bethlehem, Pa.	$17.50	$18.00	$17.00	$18.50
Birdsboro, Pa.	17.50	18.00	17.00	18.50
Swedeland, Pa.	17.50	18.00	17.00	18.50
Sparrows Point, Md.	17.50	18.00	17.00	18.50
From Swedeland, Pa., del. to Phila.	18.26	18.76	17.76	19.26
Basing Points:				
Everett, Mass	18.00	18.50	17.50	19.00
From Everett, del. to Boston, flat rate, with surcharge	19.00	19.50	18.50	20.00
Buffalo	17.50	18.00	16.50	18.50
Buffalo, del. to Boston	19.00	19.50	18.50	20.00
Bethlehem, del. to Brooklyn.....	19.77	20.27	19.27	20.77
Bethlehem, del. to Newark, N. J.	18.89	19.39	18.39	19.89
Basing Points:				
Neville Island, Pa.	18.00	18.00	17.50	18.50
Sharpsville, Pa.	17.50	17.50	17.00	18.00
Youngstown, O.	17.50	17.50	17.00	18.00
From Neville Island, Pa., del. to Pittsburgh	(Neville Island base, plus 50 to 76 cents switching charges)			
Basing Points:				
Erie, Pa.	17.50	18.00	17.00	18.50
Cleveland	17.50	17.50	17.00	18.00
Toledo, O.	17.50	17.50	17.00	18.00
Detroit	17.50	17.50	17.00	18.00
From Detroit, del. to Saginaw, Mich.	19.60	19.60	19.10	20.10
From Cleveland, del. to Akron, Canton, O.	18.76	18.76	18.26	19.26
From Toledo, del. to Mansfield, O...	19.26	19.26	18.76	19.76
Basing Point:				
Hamilton, O.	17.50	17.50	17.00	18.00
From Hamilton, del. to Cincinnati	18.51	18.51	18.01	19.01
Do., del. to Indianapolis	19.77	19.77	19.27	20.27
Basing Points:				
Duluth	18.00	18.00	.....	18.50
Chicago	17.50	17.50	17.00	18.00
Granite City, Ill.	17.50	18.00	17.00	.....
From Duluth, del. to St. Paul.....	19.94	19.94	.....	20.44
From Chicago, del. to Milwaukee..	18.50	18.50	18.00	19.00
From Chicago, Toledo or Detroit, del to Muskegon, Mich.	20.40	20.40	19.90	20.90
From Granite City, del. to St. Louis	(Granite City base, plus 56 to 75 cents switching charges)			
Basing Point:				
Birmingham, Ala.	13.50	.....	12.50	.....
From Birmingham, del. to:				
Boston, dock	19.38	.....	18.38	.....
New York, dock	19.13	.....	18.13	.....
Philadelphia, dock	18.88	.....	17.88	.....
Baltimore, dock	18.63	.....	17.63	.....
Cleveland	19.64	.....	18.64	.....
Cincinnati	18.23	.....	17.11	.....
Chicago	18.16	.....	19.14	.....
St. Louis	18.05	.....	17.05	.....
Basing Point:				
Provo, Utah	16.50	.....	.....	.....

LOW PHOS.

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.—$22.00. Basing point: Johnson City, Tenn.—.....

Philadelphia, standard and copper bearing..... 23.13

GRAY FORGE

Valley furnace	17.25
Pittsburgh, district furnace	17.75

CHARCOAL

Lake Superior, furnace	20.50
Do., del. Chicago	23.54

SILVERY

Jackson County, O., base: 6%—$22.25; 7—$23.25; 8—$24.25; 9—$25.25; 10—$26.25; 11—$27.75.

BESSEMER FERROSILICON

Jackson County, O., base: 10%—27.25; 11—$28.75; 12—$30.25; 13—31.75; 14—$33.25; 15—$34.75; 16—$36.25.

Bars

Current Level Extended To Cover Fourth Quarter — Sales Must Be Definite Tonnage

BAR PRICES, PAGE 44

Pittsburgh—Merchant steel bar prices have been reaffirmed for the fourth quarter at 1.60c base, Pittsburgh. This is a continuation of the base price for September, which was filed under the steel code Aug. 29. The firm establishment of chemical, quantity and size extras means an advance of $3 to $5 a ton to certain large buyers, even considering the application of an unchanged base price of 1.60c, Pittsburgh.

Cleveland—All new contracts under the steel code require a statement of specific tonnages; sellers no longer being permitted to cover consumers for indefinite amounts as material may be needed. Contracts are not subject to revision if prices advance or decline. This is expected to limit the number of contracts and to increase spot or short-term sales. Current business is limited to this class. Little resistance to the single price plan has been encountered; in fact, many consumers have expressed satisfaction. The price for the remainder of this quarter is 1.65c, base, Cleveland. It is understood no price change for the fourth quarter is expected on bars, plates and shapes.

Chicago—Bar prices filed recently for the remainder of this quarter now are quoted on fourth quarter shipments. Soft steel bars are 1.65c, Chicago, with rail steel 1.55c and bar iron 1.60c. Sales and specifications showed a small gain the past week. Some buyers are postponing new commitments, pending clarification of some of the uncertainties which accompanied the introduction of new price and differential schedules. Shipments and consumption are well maintained, however, and producers anticipate a more substantial gain in orders later this month. Requirements of some automotive interests show little decrease compared with August schedules, but farm implement manufacturers have yet to increase operations.

Boston—Commercial steel bar buying is light, but close to 150 tons of hot and cold rolled rounds and heat-treated alloy bars are being bought for the Charlestown navy yard.

Philadelphia—Sellers of commercial steel bars are reaffirming present prices of 1.60c, Pittsburgh, for fourth quarter. All contracts must state specific tonnage. Specifications against contracts are fairly well maintained, but new inquiry continues negligible. Hot-rolled alloy bars are now being quoted at 2.55c, Bethlehem, a newly established base for this material. This compares with the current price of 2.45c at Pittsburgh. Alloy steel billets, on which Bethlehem has also been made a new basing point, are being offered at $51, Bethlehem against the Pittsburgh price of $49. Common iron bars are holding more or less nominally at 1.60c, Philadelphia.

Tin Plate Mills Are Booked Far Ahead

Tin Plate Prices, Page 44

Pittsburgh—Most tin plate producers in this district are booked up until the end of October, although some mills claim to be booked to capacity for the remainder of the year. Tonnage which canmakers will buy the latter part of this year is taken into consideration in some instances. The new price of $4.65, mill, has not adequately been tested, owing to the unexpired balances at $4.25 on contracts. Revision of at least one important canmaker's contract, whereby a 7 per cent discount had been granted in previous years, is expected to be completed shortly. Tin mill black continues 2.50c, base, Pittsburgh.

Plates

Quiet Market Is on Steady Base —Tank Orders Developing— Distillery Tonnage Appears

PLATE PRICES, PAGE 44

Pittsburgh—The market is quieter than in some months, but prices are now uniformly based on 1.60c, Pittsburgh, for plates. Base of 1.60c, Pittsburgh, has been reaffirmed for the fourth quarter. Bids on a 60-ton standpipe for Etna, Pa., suburb of Pittsburgh, reveal Pittsburgh-Des Moines Steel Co. and McClintic-Marshall Corp. each low on respective alternates. Dravo Contracting Co., Neville Island, Pa., has begun to lay bottom plates at its Wilmington, Del., shops on the drydock it booked for the government recently that requires 3000 tons of plates. American Bridge Co. will supply 18 tons of buckle plates for repairs to Ohio river dams in the Huntington, W. Va., district. River barge orders, ordinarily a good outlet for plates in this district, are totally absent at present.

Chicago—A fair number of tank orders and inquiries are appearing, with demand from distillers offsetting in a measure the lull which has developed in brewery equipment construction. Better business from the latter is anticipated upon the completion of financing for a number of proposed breweries. Graver Tank & Mfg. Corp. has booked 750 ton of tanks for the new Hiram Walker distillery at Peoria, Ill. Commercial Solvents Co. is inquiring for tanks involving 350 tons for its new Terre Haute, Ind., plant. Other awards include 200 tons for pontoons for the Great Lakes Dredge & Dock Co. and 100 tons for a seed tank for an eastern interest. The 1.65c, Chicago, price on plates is being quoted on fourth quarter shipments.

Cleveland—New orders are moderate, the Cleveland plate mill continuing operations at approximately 40 per cent. The Glascote Co., Cleveland, has placed 525 tons of plates for tanks for the Brewing Corp. of America. Fabricators are figuring on several other fairly substantial orders for brewery tanks. Most producers are limiting present orders at 1.60c, base, Pittsburgh, to the remainder of this quarter, prices for fourth quarter not yet having been filed with the American Iron and Steel institute.

New York—While indications point to a general reaffirmation of plate prices for fourth quarter, most leading producers have not yet taken definite stand. There is little trading.

Boston—Industrial demand for plates is light, most activity being for bridges with some increase in miscellaneous buying and ship yard requirements. Prices are firm for the remainder of this quarter at 1.70c, Coatesville, Pa. There has been no covering beyond Sept. 30 at that price, however.

Philadelphia—Plate sellers are ex-

pected to open their books for fourth quarter soon. The current market is 1.70c, Coatesville, Pa., on all tonnage for shipment up to Oct. 1. Whether this price will be extended has not been definitely indicated. Meanwhile, trading is featureless, except for a fair amount of releases against contracts.

York Safe & Lock Co., York, Pa., is expected to place about 1000 tons of plates for a vault for the Federal Reserve Bank at Philadelphia.

Contracts Placed

8550 tons, caissons for west bay substructure, San Francisco-Oakland bridge, to Moore Drydock Co., Oakland, Calif.

1020 tons, six tanks for Mexican Petroleum Corp., at Chelsea, Mass., to Chicago Bridge & Iron Works, Chicago.

750 tons, distillery tanks, Peoria, Ill., for Hiram Walker & Sons Inc., Detroit, to Graver Tank & Mfg. Corp., East Chicago, Ind.

496 tons, caissons for east bay substructure, San Francisco-Oakland bridge, to Moore Drydock Co., Oakland, Calif.

250 tons, 78 tanks, Centlevre Brewing Co., Fort Wayne, Ind., to Western Gas Construction Co., Ft. Wayne, Ind.

240 tons, tank heads, Leader Iron Works, Decatur, Ill., to Lukens Steel Co., Coatesville, Pa.

235 tons, 27 small tanks, Ultramar Petroleum Co., Argentine, to McClintic-Marshall Corp., Bethlehem, Pa.; in addition to 3400 tons recently reported to same fabricator.

200 tons, still for Union Oil Co., Oleum, Calif., to Consolidated Steel Corp., Los Angeles.

200 tons, pontoons, Great Lakes Dredge & Dock Co., Chicago, to Graver Tank & Mfg. Corp., East Chicago, Ind.

135 tons, 62 tanks, Berghoff Brewing Co., Fort Wayne, Ind., to Western Gas Construction Co., Ft. Wayne, Ind.

100 tons, seed tank, Bisbee Linseed Co., Philadelphia, to Graver Tank & Mfg. Corp., East Chicago, Ind.

Contracts Pending

3000 tons, ship for Swayne & Hoyt, San Francisco; bids opened.

439 tons, including 13 tons floor plates, Panama; Worth Steel Co., Claymont, Del., and Central Iron & Steel Co., Harrisburg, Pa., low; schedule 2895, Sept. 1. United States Steel Products Co., New York, low on 68 tons of structural steel, opening same date.

350 tons, tanks, Commercial Solvents Co., Terre Haute, Ind.

210 tons, Mare Island, Calif., bids opened.

120 tons, 60-inch welded steel pipe, Hetch Hetchy project, San Francisco; Western Pipe & Steel Co., San Francisco, low.

Safety record of American railroads in 1932 was the best in history, one passenger being killed in accident. During the year 479,000,000 passengers were carried.

Sheets

No. 10 Advanced $2 for Fourth Quarter, Other Prices Extended —Shipments Sustained

SHEET PRICES, PAGE 44

Pittsburgh—Present sheet prices will continue quoted for the rest of the year except No. 10 gage hot-rolled, which will be up $2 a ton to 1.75c, Pittsburgh. Ten gage hot rolled annealed will be quoted 1.90c, Pittsburgh. Demand for sheets still is showing evidences of decline, due to uncertainties in interpreting the steel code. Orders for wide sheets from the automobile industry are still active but the higher prices of 2.30c on heavy cold-rolled and 2.75c on light cold-rolled are not yet tested. American Sheet & Tin Plate Co. took an order last week for 13,000 tons of galvanized sheets for export to Argentina.

Cleveland—Shipments will go forward to the end of this month on contracts booked prior to the filing of code prices. Specifications on these contracts must be in by Sept. 15. This tonnage is sustaining mill activity here, as consumers evidently do not intend to let any material lapse. This applies especially to the automotive interests, some of which are obtaining material at prices $5 to $6 a ton or more below the present code levels. Few orders for cold finished have been placed at the advance of $3 a ton. Some interests are restricting orders at current code prices to shipment this month; others intimate they expect no change when new prices are adopted for fourth quarter.

Chicago—With the exception of an advance of $2 a ton on No. 10 gage hot-rolled sheets, current prices are being extended into fourth quarter. Heavy hot-rolled sheets, now 1.75c, Gary base, will be 1.85c on fourth quarter shipments. Specifications against old contracts are fairly heavy and shipments continue active. Producers look for a resumption of new buying soon and anticipate a continuation of present active operations for several months. Shipments to the automotive industry still are heavy despite a decline in some directions.

Boston—New buying is in small spot lots at firm prices. Several jobbers have stocked sheets to carry well into the fourth quarter. Blue annealed at 1.65c, Pittsburgh, has been fully tested and the limited volume in galvanized is done at 2.85c, Pittsburgh.

Philadelphia—Prices recently filed are being extended for fourth quarter. These prices represent no change in the base quotations of hot-rolled products from those which have prevailed in recent weeks, but new extras and their rigid application will boost costs on some items. Cold-rolled sheet prices recently noted as named and now being extended represent an increase in the base, and in extras. A general advance in sheet base prices is expected some time in the fourth quarter.

New York—Sheet sellers are reaffirming prices for fourth quarter, except No. 10 hot-rolled on which an advance of $2 a ton will be filed by some sellers.

Buffalo—Sheet mills here increased operations to approximately 70 per cent after Labor day, and are likely to hold at this level some time longer.

Cincinnati—Freer specifying by automotive interests helps to sustain sheet mill operations at 65 to 70 per cent. Some demand for automotive sheets for preparation of new models is noted.

St. Louis—Producers report the outlook for the remainder of September favorable. The rural areas, particularly in the South, are taking more galvanized roofing material.

Birmingham, Ala.—Mills here still are producing steadily, and expect to continue active through the remainder of the year.

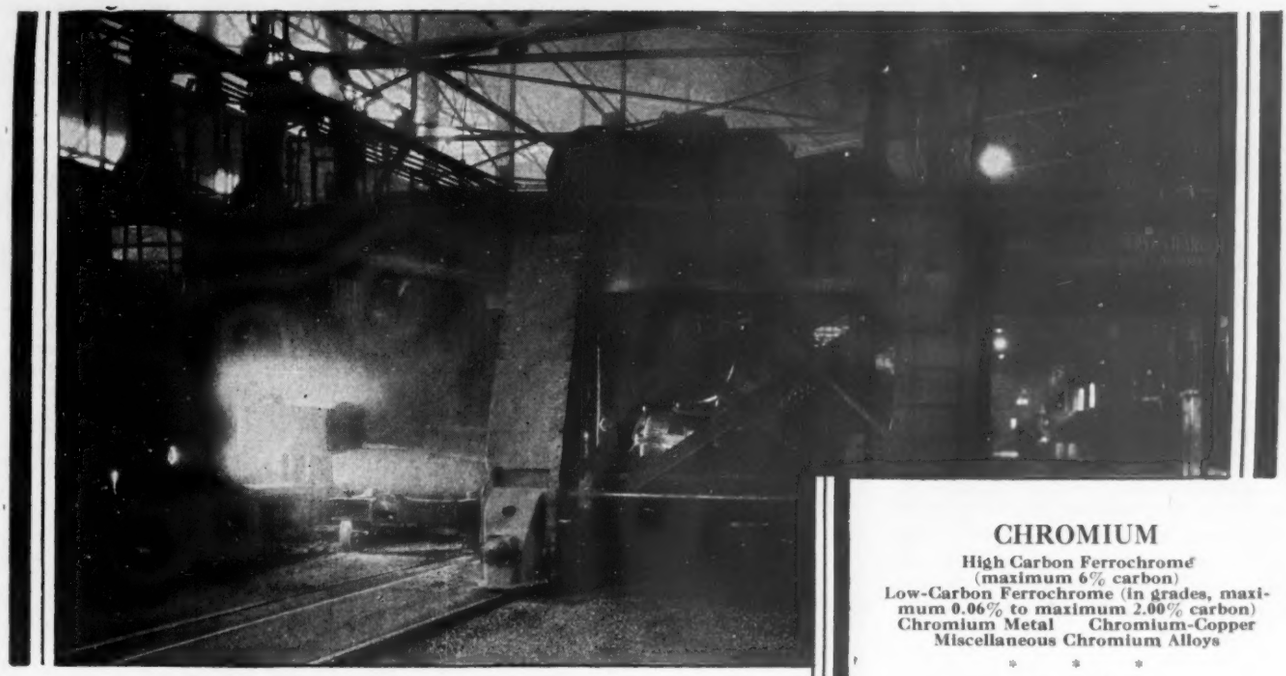
Bolt, Nut Makers Delay Fourth Quarter Prices

Bolt, Nut, Rivet Prices, Page 44

Fourth quarter prices on bolts and nuts are being considered by manufacturers in the light of advanced material costs and an adjustment is possible, if not at once, then during the quarter.

Requirements for automobile builders and railroads are holding up well, but volume in September is less than in the comparable days of August. In general stocks of consumers and jobbers are moderate.

Current prices are 73 off list for bolts and nuts and 2.50c, Pittsburgh, for large rivets. Carload lots of wrought washers are quoted at $6.25 off list, Pittsburgh and Chicago.



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AN examination of Zirconium-treated steel under the microscope reveals a distribution of impurities without respect to the grain boundaries of the metal, whereas steel treated with aluminum will usually show segregated impurities at the grain boundaries. This is particularly true of steel made by reducing silicon from the slag. Zirconium treatment reduces the grain size, eliminates hard spots, and increases machinability.

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* * *

SILICON

Ferrosilicon 15% Ferrosilicon 50%
Ferrosilicon 75% Ferrosilicon 80 to 85%
Ferrosilicon 90 to 95%
Refined Silicon (minimum 97% Silicon)
Calcium Silicon
Calcium-Aluminum-Silicon
Calcium-Manganese-Silicon
Silicon-Copper
Miscellaneous Silicon Alloys

* * *

TUNGSTEN

* * *

MANGANESE

Standard Ferromanganese 78 to 82%
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Medium-Carbon Ferromanganese
Manganese-Metal
Manganese-Copper
Miscellaneous Manganese Alloys

* * *

SILICO-MANGANESE

All Grades including Silico-Spiegel

* * *

VANADIUM

All Grades

* * *

ZIRCONIUM

Aluminum-Zirconium
35 to 40% Zirconium
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* * *

BRIQUETS

Chrome Briquets
Silicon Briquets
Manganese Briquets

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VISIT.. the exhibits of UNITS OF UNION CARBIDE AND CARBON CORPORATION
HALL OF SCIENCE
A CENTURY OF PROGRESS
CHICAGO 1933

Structural Shapes

Prices Now Being Extended To Cover Fourth Quarter Requirements—Inquiries for 5000 Tons in Mid-Western Highway Bridges—General Market Is Quiet

STRUCTURAL SHAPE PRICES, PAGE 44

Pittsburgh — Structural shapes have been reaffirmed at 1.60c, base Pittsburgh, for the fourth quarter. A large but unstated tonnage of structural steel for the new Pittsburgh postoffice ramps will be bid Sept. 20. A hotel at Lewisburg, Pa., will take 600 tons. Blaw-Knox Co., Blawnox, Pa., has been awarded 315 tons for transmission towers in Wisconsin. Steel piling is 1.90c, Pittsburgh.

Cleveland—Award of 220 tons of shapes for the Erie railroad's Pennsylvania avenue bridge in Elmira, N. Y., features a quiet market. Bids went in Sept. 7 on 200 tons of shapes and pile anchors for Cleveland's easterly sewage project. Final action on other Cleveland municipal projects, on which bids were submitted recently, still is deferred. The state is seeking $20,000,000 federal funds before proceeding with road and bridge work. Plain material is 1.60c, base, Pittsburgh.

Chicago—Shape inquiries are bolstered by 5000 tons for highway bridges in several midwestern states, the largest being 2500 tons at Omaha, Nebr. Public works inquiry is headed by lock and dam construction at Alma and Fountain City, Wis., and Canton, Mo., for which bids closed this month on 9000 tons of shapes and castings, in addition to nearly 10,000 tons of piling. Private work is restricted principally to a few small railroad bridges. Shapes continue 1.65c, Chicago, this price having been extended into fourth quarter.

Boston—Bids are in on a 500-ton bridge at Williamstown, Mass., and figures will be taken shortly on several other attractive bridge projects in New England. At 1.70c, Bethlehem, Pa., plain material is firm.

New York—Contracts for the Grand Island bridges close Sept. 14, taking 13,000 tons of structural steel, the largest active project pending in the East. State bridges also are more numerous, but general construction demand continues light. Plain material is steady at 1.70c, Bethlehem.

Philadelphia—New structural tonnage is coming out slowly, but the expectation is that the Pennsylvania railroad will shortly issue releases against old contracts for electrification work. Indications point to a general reaffirming of the existing 1.70c, Bethlehem, price for fourth quarter. The local delivered price is 1.8155c.

Buffalo—Bids on the Grand Island bridges here will be received by the state Sept. 14. Revised specifications call for 13,000 tons of structural steel, and 1600 tons of reinforcing bars for the project.

Contracts Placed

1256 tons, additional for caissons for west bay substructure, San Francisco-Oakland bridge, to Moore Drydock Co., Oakland.

948 tons, bridge over Missouri river, Roosevelt-Richland counties, Montana, to McClintic-Marshall Corp., Bethlehem, Pa.

660 tons, James Madison Memorial bridge, Rappahannock river, Port Royal, Va., to Virginia Bridge & Iron Co., Roanoke, Va.; J. S. Bowers, Whiteville, N. C., general contractor.

500 tons, bridge superstructure, Hoosic river, Massachusetts, to American Bridge Co., New York.

485 tons, buildings, Soda Products Co., Trona, Calif., to Virginia Bridge & Iron Co., Roanoke, Va.

350 tons, Wabash railroad bridges, Urbana and Raymond, Ill., to American Bridge Co., Pittsburgh.

350 tons, Santa Fe railroad bridge, Ashland avenue, Chicago, to Hansell-Elcock Co., Chicago.

340 tons, highway bridge, Idaho, to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

315 tons, transmission towers, Port Washington, Wis., for Milwaukee Electric Railway & Light Co., Milwaukee, to Blaw-Knox Co., Blawnox, Pa.

260 tons, state bridge, Walden village, Orange county, New York, to Lackawanna Steel Construction Corp., Buffalo.

225 tons, Muessel Brewing Co., South Bend, Ind., to Edwards Iron Works Inc., South Bend.

220 tons, Erie railroad bridge over Pennsylvania avenue, Elmira, N. Y., to American Bridge Co., Pittsburgh.

200 tons, G. L. F. elevator, Albany, N. Y., to R. S. McMannus Steel Construction Co., Buffalo.

176 tons, Brighten Laundry building, Brooklyn, N. Y., to Nassau Iron Works, Queens (New York); through Riger Bldg. Corp.

125 tons, brewery, St. Paul, to St. Paul Foundry Co., St. Paul.

125 tons, bridge, Taney county, Missouri, to Stupp Bros. Bridge & Iron Co., St. Louis.

125 tons, state bridge, Triadelphia, W. Va., to Fort Pitt Bridge Works, Pittsburgh.

Shape Awards Compared

	Tons
Week ended Sept. 9	**6,659**
Week ended Sept. 2	**8,083**
Week ended Aug. 26	**5,082**
This week in 1932	**12,082**
Weekly average, 1932	**14,285**
Weekly average, 1933	**14,021**
Weekly average, Aug.	**6,982**
Total to date, 1932	**582,252**
Total to date, 1933	**518,779**

Contracts Pending

16,000 tons, towers, Triboro bridge, New York; bids expected late in September.

9000 tons, shapes and castings, Mississippi river locks and dams Nos. 4, 5, and 15, in addition to 10,000 tons of piling previously reported. Bids Sept. 22, United States engineers' office, St. Paul, on No. 4; Sept. 29 at St. Paul on No. 5, and at United States engineers' office, Rock Island, Ill., on No. 15.

2500 tons, highway bridge, Omaha, Neb.

1000 tons, shaft, New York side of Midtown-New Jersey tunnel.

1000 tons, ship for Swayne & Hoyt, San Francisco; bids opened.

850 tons, highway bridges, Oklahoma.

600 tons, Lewisburg hotel, Lewisburg Pa.

600 tons, highway bridges, Iowa.

600 tons, highway bridges, Illinois and Missouri.

550 tons, state bridges, Marshall, Monongalia and Ohio counties, West Virginia; Fort Pitt Bridge Works, Pittsburgh, low.

500 tons, highway bridges, Arkansas.

500 tons, addition, postoffce, Des Moines, Iowa; again advertised, bids Sept. 20.

400 tons, state bridge, West Virginia; bids Sept. 19.

400 tons, hangars, Corry Field, Pensacola, Fla.; bids Sept. 27.

400 tons, state bridge, Pleasants county, West Virginia, Guibert Steel Co., Pittsburgh, low.

350 tons, highway bridge, Alaska, for Alaska road commission.

315 tons, highway bridge No. 2, New Castle county, Delaware.

300 tons, highway bridge, Hasbrook Heights, N. J.

275 tons, state bridge over Russian river at Preston, Calif.; bids Sept. 20.

260 tons, bridge on state project E-99-E, Arizona; bids Sept. 18.

170 tons, highway bridge, Winthrop, N. Y., for state highway commission.

150 tons, clarifier bridges, sewage treatment plant; Calumet, Ill.; Simplex Ejector Aerator Corp., Chicago, general contractor.

134 tons, state bridge in Kit Carson county, Nevada; bids Sept. 8.

125 tons, Holy Cross order novitiate, La Porte, Ind.

120 tons, postoffice, Malone, N. Y., again advertised; bids Sept. 14.
110 tons, postoffice, Catskill, N. Y.; bids again Sept. 21.
100 tons, postoffice, Bloomsburg, Pa.; bids again Sept. 15.
100 tons, or more, frames for bulkhead gates, Boulder dam power plant, Colorado; John W. Beam, Denver low, $18,500; bids Aug. 14.

Concrete Bars

Higher Prices Now in Effect In All Districts, and Named In Some Instances for Fourth Quarter—3953 Tons Placed For Boulder Dam—Number Of Awards Declines

REINFORCING BAR PRICES, PAGE 44

Pittsburgh—Higher prices on new billet steel bars now are being quoted, with the Pittsburgh base 1.80c. Reinforcing bar producers have eliminated the lump sum extras on lots of bars under 6000 pounds, which continue to apply on merchant steel bars. Allegheny county, Pennsylvania, controller is asking for bids Sept. 12 on an unstated tonnage of reinforcing steel.

Cleveland—New billet steel in mill lengths to users now is 1.95c, base, Cleveland. On 700 tons for the Cleveland easterly sewage plant all bids, opened last week, were 2.35c for the bars delivered to the job. This is the largest tonnage pending here. Little is developing from public work in the state.

Chicago—Reinforcing bar prices are being extended into fourth quarter. These are 1.95c for cut lengths of billet bars, and 1.80c for rail steel. Orders and inquiries continue slow, but release of the large volume of business involved in highway construction under the public works program will stimulate activity considerably. Some distributors have accumulated fairly heavy stocks in anticipation of the higher prices recently put into effect.

Boston—On 350 tons of billet steel bars for federal government dam work at Barre, Vt., 2.05c, delivered, was bid by a New York distributor. Buying is slack, but with some gain in small-lot volume. Billet bars are steady at 1.95c, Buffalo, and rail steel bars at 1.80c, same point.

New York—Demand for highway mesh continues active, New York state inquiry being increased by 600 tons for New Jersey state roads, first bids closing this week. Billet steel bars for reinforcing also are in better demand, notably bridge requirements in small lots. Prices are steady at 1.90c, Pittsburgh, for cut lengths.

Philadelphia—Reinforcing bar demand remains at a virtual standstill, with prices nominal at the recently announced figure of 1.90c. Pittsburgh, or 2.21c, Philadelphia, on material in cut lengths. Rail steel bars are 1.75c, Pittsburgh, or 2.06c, Philadelphia.

Contracts Placed

400 tons, mesh, highway, Sunrise extension, Part 2, Suffolk county, New York, to Kalman Steel Corp.; through Vincent Schiavi and T. J. Fisher, Buffalo.

3953 tons, schedule 1 and 2, specification A-3270-A, Boulder dam, Boulder City, Nev. Allocated as follows Schedule 1—1243 tons to Colorado Fuel & Iron Co., Denver; schedule 2—2710 tons to Pacific Coast Steel Corp., San Francisco.

325 tons, rerolled bars, state highways, Pittsfield-Lanesboro and Huntington, Mass., to Northern Steel Co., Boston; through Lane Construction Co., Meriden, Conn.

300 tons, highway, Northern State Parkway, Section 2, Nassau county, New York, to Wickwire Spencer Steel Co., New York; through Standard Bithulithic Co., New York.

250 tons, mesh, highway, Etna-Freeville-Dryden, Tompkins county, New York, to American Steel & Wire Co., New York; through John Bellardine, Seneca Falls, N. Y.

200 tons, library and auditorium, Los Angeles County Medical association, Los Angeles, to unnamed interest.

150 tons, highway, Little Ridge, Monroe county, New York, to American Steel & Wire Co., New York; through Manitou Construction Co., Rochester, N. Y.

104 tons, Missouri river bridge, Roosevelt and Richland counties, Montana, to Pacific Coast Steel Corp., San Francisco.

Concrete Awards Compared

	Tons
Week ended Sept. 9	5,682
Week ended Sept. 2	6,735
Week ended Aug. 26	6,500
This week, 1932	5,877
Weekly average, 1932	3,920
Weekly average, 1933	3,494
Weekly average, Aug.	3,074
Total to date, 1932	154,058
Total to date, 1933	129,286

Contracts Pending

724 tons, lock and dam No. 20, above Canton, Mo.; bids Sept. 29, United States engineer, Rock Island, Ill.
400 tons, marine hospital, Buffalo; again advertised, bids Sept. 14.
350 tons, United States engineer, first district, New York, Caroll & McCreery Co. Inc., Brooklyn, low, 2.05c, f.o.b., Barre, Vt. Material is for dam work.
279 tons, state highway work, California; bids Sept. 20 and Sept. 21.
225 tons, mesh, highway, route 6, section 1F, from route 2 to Hackensack river, Bergen county, New Jersey; bids Sept. 25.
200 tons, mesh, highway, route 3, section 2B, Secaucus to Moonachie road, Hudson and Bergen counties, New Jersey; bids Sept. 21. Bids Sept. 18 on paving routes 21, 25 and 29, section 11A, taking 70 tons of mesh.
145 tons, mainly mesh, highway, route 6, section 1E, Ridgefield Park and Ridgefield, Bergen county, New Jersey; bids Sept. 25. Work also includes bridge over Teaneck road.
115 tons, state highway work near Grand Canyon bridge, Arizona; bids Sept. 13.
100 tons, new dam No. 3, Allegheny river, United States engineer, Sept 27.
Unstated tonnage, 60,000 squares noncorrosive reinforcing wire fabric, United States engineer, Memphis, Tenn.; bids Sept. 13. Bids close Sept. 18 on 50,000 squares with United States engineer, Vicksburg, Miss.
Unstated tonnage, probably several hundred tons, armory, Baltimore.

Cold-Finished Prices Are Being Worked Out

Cold Finished Prices, Page 45

Pittsburgh—In addition to the filing of a price of 1.95c, Pittsburgh, on cold-finished carbon bars, the following prices under the Steel Code have been filed on turned and ground shafting, Cumberland, Md., base: 1⅛ inch, 3.25c; 1 3/16 to 1½-inch, 2.75c; 1 9/16 to 1⅞-inch, 2.60c; 1 15/16 to 2⅞-inch, 2.45c; and 2 15/16 to 6-inch, 2.30c. As previously stated, cold drawn alloy bars are settled at 2.95c base, Pittsburgh. From the standpoint of orders, the cold-finished bar market is declining and shipments are much less than in midsummer.

Jeffrey Mfg. Co., Columbus, O., has bought the entire patent, manufacturing and selling rights for all devices manufactured and sold by the Traylor Vibrator Co., Denver. Production will be removed to the plant at Columbus. James A. Flint, formerly vice president of the Traylor company, will be in general charge of the new division.

Pipe

Delay in Public Works May Put Many Projects Over Until Late In Year—Pittsburgh To Buy

PIPE PRICES, PAGE 45

Pittsburgh—Prospective purchases of pipe by the city of Pittsburgh appear at present to involve a large tonnage but whether steel, iron or fabricated pipe will be specified has not been announced. A local interest is understood to have the franchise to supply natural gas to Clyde, N. Y., a plan which may involve ultimately the laying of a line. Seamless grades appear to be picking up somewhat but lap weld still is slow.

Cleveland—Action on 18,000 tons of cast pipe and 5000 tons of steel pipe for Cleveland watermain extensions still is deferred, pending an R.F.C. loan. The market for pipe is dull, municipalities doing little work, and building construction lagging.

Chicago—Although hundreds of loan applications from municipalities in the Middle West for construction requiring cast iron pipe are pending, lack of government approval still defers work. Orders and inquiries recently have been few and unless these loans are granted soon the bulk of the projects will not materialize until late this year.

Boston—Steel and cast pipe demand is limited to small lots. Considerable cast pipe business is held up for financing. National Tube Co., Pittsburgh, booked 6170 feet, seamless steel tubing for Portsmouth, N. H.

New York—Cast pipe buying and inquiry is light, although New York city is buying more material. Most demand is for small tonnages for state work. Around $42, delivered was bid on a small lot of cement lined pipe for New York. The cast pipe code has been submitted for hearings.

The New York State Natural Gas Co., New York, has divided 3500 tons of 10-inch steel pipe between Jones & Laughlin Steel Corp., and Spang, Chalfant & Co. Inc.

Birmingham, Ala.—Production is being held down as new business fails to develop better volume. Progress is being made on remodeling the pipe shops of the United States Pipe & Foundry Co., at Bessemer, 12 miles south of Birmingham.

Cast Pipe Placed

225 tons, 6, 8 and 12-inch, New York city, 160 tons to Donaldson Iron Works, Emaus, Pa.; remainder to Central Foundry Co., Birmingham, Ala.

150 tons, 4, 6 and 10 inch centrifugal monocast, for Olympia, Wash., to American Cast Iron Pipe Co., Birmingham, Ala.

Steel Pipe Placed

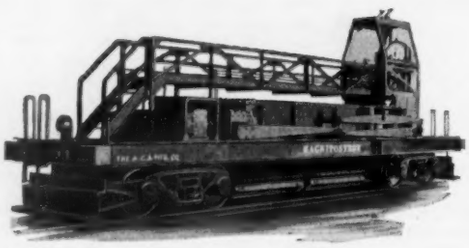
3500 tons, 10-inch, for New York State Natural Gas Co., New York, divided between Jones & Laughlin Steel Corp. and Spang, Chalfant & Co. Inc., Pittsburgh.

Unstated tonnage, 72 seamless steel flasks, 16-inch i. d. for compressed air system, two submarines, Portsmouth, N. H., to National Tube Co., Pittsburgh, $32,783.20, delivered; bids Aug. 29.

Cast Pipe Pending

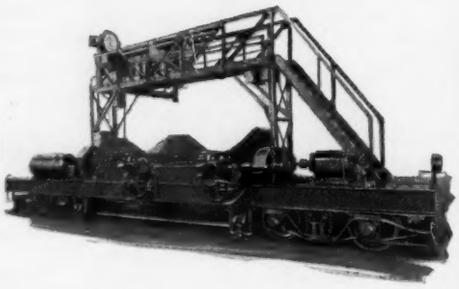
500 tons, New York city, department

ATLAS SCALE CARS



20 Ton — Double Compartment Scale Car. Journals provided with self aligning anti-friction bearings. Equipped with Atlas Indicator and Recorder.

20 Ton Two Compartment Scale Car with Orr Bin Gate Operating Mechanism. Anti-friction bearings. Equipped with Atlas Indicating and Recording Mechanism.



Other Atlas Products

Gas-Electric and Diesel-Electric Locomotives—Car Pushers—Storage Battery Locomotives—Electrically Operated Industrial Cars—Scale Cars and Weighing Cars of all kinds — Ore Transfer Cars and Blast Furnace Charging Cars.

Coke Oven Equipment

Pushers and Levelers—Coal Charging Cars—Door Handling Machines — Coke Quenching Cars.

Also Atlas Patented Indicating and Recording Mechanism for Weighing Scales.

THE ATLAS CAR & MFG. CO.

Engineers *Manufacturers*

CLEVELAND, OHIO

of purchases; bids Sept. 20.

Steel Pipe Pending

120 tons, galvanized and black extra strong, mainly former, 4-inch and under, except 1800 feet, 12-inch, for Panama; S. Weinstein Supply Co., New York, low; schedule 2895, Sept. 1. Largest item includes 24,000 feet, 1-inch galvanized.

Unstated tonnage, 2,750,000 feet, 1-inch, black steel tubing, reclamation service, Denver; Republic Steel Corp., low, $59,950 f.o.b. Butler, Pa.; also 300,000 feet, same, $6540, f.o.b., same point; bids Aug. 10, schedule A-3262-A1.

Strip

Quotations Up for Fourth Quarter; New Buying Light

Strip Prices, Page 45

Pittsburgh—Hot-rolled strip steel has been advanced $2 a ton to 1.75c base, Pittsburgh, for fourth quarter. Cold-rolled strip has been advanced $3 a ton to 2.40c, Pittsburgh, for the same period. In the meantime, markets of 1.65c on hot-rolled and 2.25c on cold-rolled continue for September for specifications entered and shipped in that time.

Cleveland—Though 1.65c, base, Pittsburgh, for hot-rolled strip, and 2.25c, base, Cleveland, for cold-rolled were the first prices for these products filed under the steel code, some makers now are filing new prices to become effective in ten days, 1.75c for hot-rolled, and 2.40c for cold rolled, advances of $2 and $3 a ton, respectively. The present intention is to make the new prices applicable to fourth quarter. Buying is light, many consumers having placed contracts before the first code prices were filed. Mill operations are holding up fairly well, supported by specifications on contracts.

Chicago — Specifications against strip contracts are in fair volume, particularly from some automotive interests and shipments, are well maintained. Current prices of 1.75c, Chicago, for hot strip and 2.55c, delivered Chicago, for cold-rolled strip are continued.

Philadelphia—While base prices are holding at 1.65c and 2.25c, Pittsburgh, on hot and cold-rolled strip, respectively, with no change in prospect for fourth quarter, specifications against existing contracts are increasing, consumers covering as protection against new extras which are now in effect on new orders.

Boston—Fourth quarter price on cold-rolled strip has been announced at 2.60c, Worcester, or 2.45c, Pittsburgh, effective Sept. 16 and no fourth quarter contracts to be made before that date. This is an advance of $3 per ton and is dependent on favorable action under the steel code.

Cold-rolled strip operations here have held surprisingly well on full specifications and a fair volume of buying for shipment before Sept. 30 at 2.45c, Worcester, Mass. As a result, rerollers of cold strip have materially reduced backlogs of low-priced hot strip bought heavily late in June.

New York—Strip sellers will advance hot-rolled $2 and cold $3 to 1.75c and 2.40c, Pittsburgh, respectively. Fourth quarter specifications against existing contracts are increasing.

Specify B L

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Drawn and Ground

When the majority of steel purchasers or engineers think of shafting they automatically think of Bliss & Laughlin, an institution that has been manufacturing this class of cold-finished steel bars for over forty years. Our Engineers and Field Representatives welcome the opportunity to discuss your shafting problems with you and are in a position to make recommendations that will result in economies and successful application. On your next order may we invite you to specify B & L Shafting.

Bliss & Laughlin, Inc.

Harvey, Ill. **Buffalo, N. Y.**

Sales Offices in all principal cities

Pig Iron

Sales Light—12,000 Tons Reported Placed in East—Southern Iron Underselling Northern

PIG IRON PRICES, PAGE 46

Cleveland—Inquiries for fourth quarter have appeared, 3000 tons, developing in the past week, but furnaces are not quoting for that period. One of the drawbacks to the code price system pointed out by makers is the requirement of filing for public inspection new prices ten days in advance of the effective date. In a declining market this would mean that sales would practically stop for the ten-day period. In a rising market, the seller might have to withdraw from the market for ten days, or limit sales. The Cleveland base is $17.50. Sales here during the week tapered to approximately 2000 tons, but shipments so far this month are slightly ahead of the comparable period in August. Jackson county silvery and bessemer ferrosilicon irons are up $1 a ton.

Pittsburgh—Pig iron producers are quoting the prices recently advanced $1 a ton for fourth quarter, although as yet this offer has not tempted much buying. The price of iron in this district to apply through the remainder of the year is $18, Pittsburgh furnace. Basic is $17.50 and bessemer $18.50. Only small sales are noted.

Chicago—While some confusion still exists in the interpretation of regulations in the iron and steel code governing pig iron, new business shows a slight improvement. The $17.50 furnace price for No. 2 foundry and malleable is being quoted on fourth quarter shipments. Consumers generally are covered at the old prices on requirements for the remainder of this quarter and shipments are fairly well maintained at about the August rate, which was the highest for any month so far this year. Charcoal pig iron has been advanced 50 cents a ton to $20.50, base furnace. Differentials are in effect for higher silicon and extremely hard chilling grades.

Boston—Prices are firm at $18, minimum, Everett furnace, plus freight, with northern producers in line. Southern iron, however, is available for nearby Boston delivery at 38 cents under delivered prices of northern furnaces. Indian iron is being sold on a basis of the Everett minimum, but the Dutch iron price situation is uncertain. Conjecture is rife as to the purchaser of 12,000 tons for delivery through fourth quarter, confirmed by a Buffalo district seller at New York, but it is definitely stated this was not bought by the Worcester steelworks. Close to 1200 tons of Indian iron arrived recently.

Philadelphia—Pending in the market here are the 10,000 tons of basic previously noted for an eastern Pennsylvania consumer, and 50,000 tons of foundry iron for cast iron segments for the midtown vehicular tunnel which are expected to be awarded before the close of this month. Other business is light. While sellers, as noted in a previous issue, have opened their books for fourth quarter at unchanged prices,

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WARREN OHIO

SPECIALIZED PRODUCTION COLD ROLLED STRIP STEEL

an advance this fall is probable. Current prices delivered Philadelphia are $18.26 for No. 2 foundry, $18.76 for malleable, $17.76 for basic, and $23.13 for standard and bearing low phosphorus. These prices are subject to freight surcharge of 10 per cent.

New York—Demand for pig iron is moderate. Little inquiry is appearing for fourth quarter.

Buffalo—Shipments have picked up briskly, but new buying is slow. Little resistance is noted to the new prices.

Cincinnati—Competition from this district on an inquiry for 1500 tons of malleable iron for an Indiana melter was not active, and this was the only recent test of furnace policy, as to whether part of freight rates will be absorbed in zones of competition. Southern furnaces continue to quote, in this district, with Hamilton, O., as basing point, and 38 cents under the northern iron price.

St. Louis—New purchasing is practically at a standstill. Shipments, however, are well maintained. The melt has been decreased to some extent by suspension of operations at east side stove and range plants, due to labor troubles.

Birmingham, Ala.—Spot sales predominate. and the aggregate is not as large as a few weeks ago. The fourth quarter base price is announced as $13.50 for No. 2 foundry, with $12.50 for basic, but only a limited amount of pig iron has been sold for delivery the last three months of the year.

Coke

Higher Prices Expected; Some Hesitation Seen

Coke Prices Page 46

Quiet rules in the coke market in the Pittsburgh district and prices are untested at $2.50, Connellsville ovens, for furnace grades. $3 for foundry and $4.50 for premium grades. Several consumers expected to buy at this time are out of the market. A merchant blast furnace has inrceased its coke production and will make about 40,000 tons this month to meet expected fall demand.

A moderate gain in demand has been noted at Chicago the past week. The current market of $8, ovens, for outside delivery, and $8.75, delivered Chicago, applies only to September shipments.

Prices are stronger in eastern Pennsylvania, by-product furnace coke being advanced sharply and by-product foundry coke being strong. Strength is apparent in all centers.

Price Advance Expected On Ferromaganese

Ferroalloy Prices, Page 46

Ferromanganese sellers are expected to open books shortly for fourth quarter contracts. An advance in the present $82, seaboard, price is predicted in some quarters. Specifications are fairly steady. Domestic spiegeleisen, 19 to 21 per cent, is unchanged at $27, furnace, for spot tonnages.

Colorado Fuel & Iron Co. has abandoned oil well drilling on its property at Terico, Las Animas county, Colorado.

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When industry speeds its wheels, and production gets into full swing, OBSOLETE materials handling equipment retards time schedules and throws production out of line.

The most modern plant and latest machinery can be handicapped by the lack of up-to-date handling methods.

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PHILADELPHIA DIVISION
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Makers of Yale Hand Chain Hoists, Electric Hoists, Trolleys, Electric Trucks and Hand Lift Trucks.

Wire

Shipments Active, Buying Slow; Foresee Better Demand

Wire Prices, Page 44

Pittsburgh—Base prices on nails and wire through September are being quoted by producers unchanged from the schedule of July 1. This calls for $2.10 per keg on nails and 2.10c on bright hard wire for manufacturing use. Certain changes have been made in extras on wire products although they are minor and being confined to processing extras do not change size, quantity or other important extras. Buying of wire products has shown some decline.

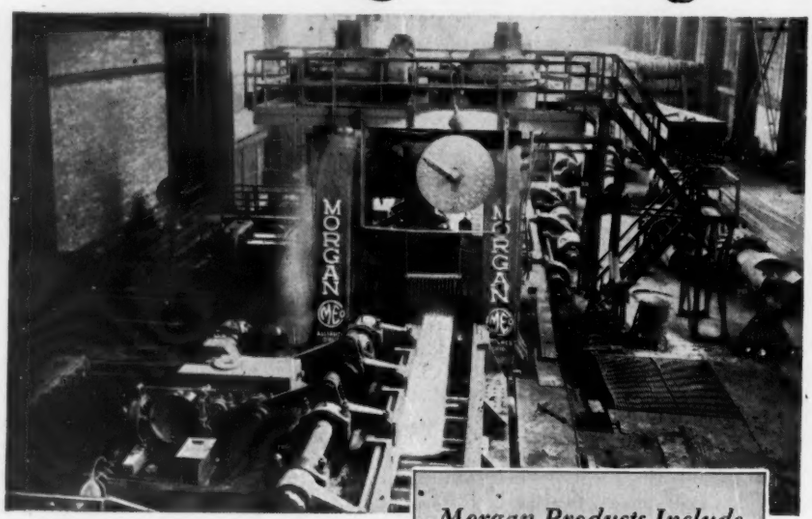
Chicago—While little fourth quarter business in wire and wire products is appearing, current prices of $2.15 for wire nails and 2.15c for plain wire are expected to prevail on fourth quarter shipments. New business recently has been rather slow but shipments still are fairly active, aided by backlogs. Jobbers stocks, while heavier than was true several months ago, are only moderate and consumption of manufacturers' wire is holding fairly well in several industries. Producers anticipate a fall upturn, aided by better demand from farm areas.

Cleveland — Prices for fourth quarter have not been determined, and in the meantime 2.10c, base, Cleveland, applies to plain manufacturers' wire, and $2.10 per keg to nails. Shipments are holding up fairly well, but producers report new buying is in abeyance pending clarification of code price details.

Boston—A New Haven, Conn., mill will draw close to 5000 miles of No. 12 telephone wire for the forest service. Other New England mills have taken miscellaneous business, although the trend in buying by regular consumers is downward. Plain wire is firm at 2.20c, Worcester.

Sydney, N. S.—Dominion Steel & Coal Corp. has received an order for 1000 tons of nails for the British market, the first in 14 years. It will be filled from the plant here and about 130 men will be given employment.

BUILT BY MORGAN *Engineering* » »



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Refractories Demand Less; Some Work in Doubt

Refractories Prices, Page 46

Pittsburgh—The market on refractory brick has shown a declining trend for the past month. In contrast to large orders placed by steel companies and other users through most of July, only small fill-in requirements have constituted the market. Several blast furnace relining projects have been held up. The market on first quality fire clay and silica brick holds at its recent advance to $45 per 1000 but second quality is being shaded. Chrome brick at $45 per ton and magnesite brick at $65 per ton are both unchanged.

A. O. Smith Corp., Milwaukee, has recalled 200 more workmen, making total additions of 2800 since March, the payroll now being 4210 workers. While part of this increase is due to a large order of pipe and the new beer barrel department, the greatest factor is a general gain in nearly all lines.

Scrap

Buying Drops but Prices Not Severely Weakened — Heavier Demand Expected Soon

Pittsburgh—Suspension of shipments on some orders featured the scrap market last week and a gage of the true buying market was difficult to determine because of absence of interest or buying on the part of mills. Heavy melting steel seems plentiful from secondary brokers and collectors at around $12.75, and for this reason the 10,000-ton Pennsylvania list which closed Sept. 6 attracted little competition. The Baltimore & Ohio is out with a list to close Sept. 11, about 9000 tons. In addition, the Norfolk & Western will close Sept. 15 on a smaller list. Prices are unchanged from the decline of 50 cents a ton a week ago, although the market on many grades still is nominal.

Chicago — Scrap continues quiet

IRON AND STEEL SCRAP PRICES

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	9.50 to 10.50
Boston, dealers	7.25 to 7.50
Buffalo, No. 1	11.00 to 11.50
Buffalo, No. 2	10.00 to 10.50
Chicago	9.50 to 10.00
Cleve., No. 1	10.50 to 11.00
Cleve., No. 2	10.00 to 10.50
Det., No. 1	8.75 to 9.25
Det., No. 2	7.75 to 8.25
E. Pa.	10.50 to 11.50
E. Pa., No. 2	9.50 to 10.50
Federal, Ill.	8.75 to 9.25
Granite City, Ill.	8.25 to 8.75
N. Y., deal. R. R.	8.00 to 8.50
N. Y., deal. No. 2	7.00
N. Y. deal. yd.	5.50 to 6.00
Pitts., No. 1	13.00 to 13.50
St. L. No. 1 del.	9.75 to 10.25
Valleys, No. 1	13.00 to 13.50

COMPRESSED SHEETS

Buffalo, dealers	9.50 to 10.50
Chi. (Factory)	8.00 to 8.50
Cleveland	10.00 to 10.50
Detroit	8.75 to 9.25
E. Pa. new mat.	10.50 to 11.00
Pittsburgh	12.75 to 13.25
Valleys	12.50 to 13.00

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cincinnati, del.	6.00 to 6.50
Cleveland	8.00 to 8.50
Eastern Pa.	9.00 to 10.00
Pittsburgh	11.75 to 12.25
St. Louis	6.00 to 6.50

SHEET CLIPPINGS LOOSE

Chicago	5.00 to 5.50
Cincinnati	5.00 to 5.50
Detroit	6.00 to 6.50
St. Louis	5.50 to 6.00

STEEL RAILS SHORT

Birmingham	11.50 to 12.00
Boston, dealers	7.00 to 7.25
Buffalo	12.00 to 12.50
Chicago (3 ft.)	11.00 to 11.50
Chicago (2 ft.)	12.00 to 12.50
Cincinnati, del.	12.00 to 12.50
Detroit	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	15.25 to 15.75
St. Louis	11.50 to 12.00

STOVE PLATE

Birmingham	7.00 to 8.00
Boston, dealers	4.50 to 4.75
Buffalo	9.00 to 9.50
Chicago, net	7.50 to 8.00
Cinci., deal.	7.00 to 7.50
Detroit, net	4.50 to 5.00
Eastern Pa.	9.50
N. Y. deal. Fdry.	6.00
St. Louis	7.00 to 7.50

COUPLERS, SPRINGS

Buffalo	11.50 to 12.00
Chicago	10.50 to 11.00
Eastern Pa.	14.00 to 15.00
Pittsburgh	14.75 to 15.25
St. Louis	10.00 to 10.50

ANGLE BARS—STEEL

Chicago	10.50 to 11.00
St. Louis	10.00 to 10.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	11.50 to 12.50
Cleveland bil. and bloom crops	12.50 to 13.50
Eastern Pa.	14.00 to 15.00
Pittsburgh billet bloom crops	15.50 to 16.00
Pitts., sheet bar crops	15.50 to 16.00

FROGS, SWITCHES

Chicago	9.50 to 10.00
St. Louis	10.00 to 10.50

SHOVELING STEEL

Chicago	9.50 to 10.00
Cleveland	6.75 to 7.00
St. Louis	9.00 to 9.50

RAILROAD WROUGHT

Birmingham	8.00 to 8.25
Boston, dealers	2.00 to 2.50
Buffalo, No. 1	7.00 to 8.00
Buffalo, No. 2	11.00 to 11.50
Chi., No. 1, net	8.00 to 8.50
Chi., No. 2	9.50 to 10.00
Cinci., No. 2	9.50 to 10.00
Eastern Pa.	11.00 to 12.00
N. Y., No. 1 deal.	8.00 to 8.50
Pitts., No. 1	13.00 to 13.50
St. Louis, No. 1	7.00 to 7.50
St. Louis, No. 2	8.75 to 9.25

SPECIFICATION PIPE

Boston	4.00 to 4.50
Eastern Pa.	9.50 to 10.00
N. Y., deal.	5.50 to 6.00

BUSHELING

Buffalo, No. 1	9.50 to 10.50
Chicago, No. 1	7.75 to 8.25
Cinci., No. 1 deal.	7.00 to 7.50
Cinci., No. 2	3.50 to 4.00
Cleve., No. 2	8.00 to 8.25
Det., No. 1 new	7.50 to 8.00
St. Louis, No. 1	6.50 to 7.00
Val. new No. 1	12.50 to 13.00

MACHINE TURNINGS

Birmingham	3.50 to 4.50
Boston, dealers	3.50 to 4.00
Buffalo	6.75 to 7.25
Chicago	5.50 to 6.00
Cinci., deal.	5.50 to 6.00
Cleveland	8.00 to 8.25
Detroit	6.00 to 6.50
Eastern Pa.	7.50 to 8.50
N. Y., deal.	4.00 to 4.50
Pittsburgh	10.00 to 10.50
St. Louis	4.50 to 5.00
Valleys	10.75 to 11.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston, dealers	3.00 to 3.25
Buffalo	6.75 to 7.25
Cinci., deal.	5.50 to 6.00
Cleveland	8.25 to 8.50
Detroit	6.75 to 7.25
Eastern Pa.	7.00 to 7.50
N. Y., deal	4.00 to 4.50
Pittsburgh	9.25 to 9.75

CAST IRON BORINGS

Birming., plain	3.50 to 4.50
Boston, chem.	10.00 to 11.00
Boston, dealers	3.25 to 3.50
Buffalo	6.75 to 7.25
Chicago	5.75 to 6.25
Cinci., deal.	5.50 to 6.00
Cleveland	8.25 to 8.50
Detroit	6.75 to 7.25
E. Pa., chem.	12.00 to 15.00
N. Y., deal	4.00 to 4.50
Pittsburgh	9.25 to 9.75
St. Louis	4.75 to 5.25

PIPE AND FLUES

Cinci., deal.	4.50 to 5.00

RAILROAD GRATE BARS

Buffalo	5.00 to 5.50
Chicago, net	7.00 to 7.50
Cincinnati	5.00 to 5.50
Eastern Pa.	9.00 to 9.50
N. Y., deal.	5.25 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, dealers	5.00 to 5.50
Buffalo	9.00 to 9.50
Cleve. ov. 10 in.	9.00 to 9.50
Detroit	7.50 to 8.00

FORGE SCRAP

Boston, dealers	4.00 to 4.50
Chicago (heavy)	11.00 to 11.50
Eastern Pa.	10.50

ARCH BARS, TRANSOMS

Chicago, net	8.00 to 8.50
St. Louis	9.50 to 10.00

AXLE TURNINGS

Boston, dealers	4.50 to 4.75
Buffalo	7.50 to 8.00
Chi., elec. fce.	8.00 to 8.50
Cleveland	9.50 to 10.00
Eastern Pa.	10.00 to 10.50
St. Louis	5.50 to 6.00

STEEL CAR AXLES

Birmingham	11.00 to 11.50
Boston, ship. pt.	8.00 to 8.50
Buffalo	10.00 to 11.00
Chicago, net	11.00 to 11.50
Eastern Pa.	15.50
St. Louis	11.50 to 12.00

SHAFTING

Boston, ship. pt.	10.00 to 10.25
Eastern Pa.	15.00 to 15.50
N. Y., deal.	10.00 to 10.25
St. Louis	8.00 to 8.50

CAR WHEELS

Birming., iron	9.00 to 9.50
Boston, iron deal.	6.75 to 7.25
Buffalo, iron	8.00 to 9.00
Buffalo, steel	11.00 to 11.50
Chicago, iron	9.50 to 10.00
Chi., rolled steel	10.50 to 11.00
Cincinnati, iron	9.00 to 9.50
E. Pa., iron	12.00 to 13.00
E. Pa., steel	14.00 to 15.00
Pitts., iron	12.25 to 12.75
Pitts., steel	14.50 to 15.00
St. Louis, iron	8.50 to 9.00
St. Louis, steel	10.00 to 10.50

NO. 1 CAST SCRAP

Birmingham	9.00 to 10.00
Boston, No. 2	5.00 to 5.50
Boston, Tex. con.	10.75 to 11.00
Buffalo, cupola	10.00 to 10.50
Buffalo (mach.)	11.00 to 11.50
Cleve. cupola	10.50 to 11.00
Chi., mach. net	9.50 to 10.00
Chi., railroad net	9.00 to 9.50
Cinci., mach. cup.	9.00 to 9.50
Cleve. cupola	10.00 to 10.50
Detroit, net	8.00 to 8.50
E. Pa., cupola	12.00 to 13.00
N. Y., cup. deal.	6.00 to 6.50
N. Y., del. local foundries	9.00 to 9.50
Pitts., cupola	10.25 to 10.75
San Fran., del.	13.50 to 14.00
Seattle	4.50 to 6.50
St. Louis, No. 1	9.00 to 9.50
St. L. No. 1 mach.	9.00 to 9.50

HEAVY CAST

Boston, del.	5.50 to 6.00
Buffalo, break	7.00 to 8.00
Cleve., break	7.50 to 8.00
Detroit break	6.00 to 6.50
Detroit, auto net	9.00 to 9.50
Eastern Pa.	11.00 to 11.25
N. Y., No. 1, deal.	7.00 to 7.50
N. Y., break. deal.	6.75 to 7.00
Pittsburgh	10.50 to 11.00

MALLEABLE

Boston, consum.	12.50 to 13.00
Buffalo	11.50 to 12.00
Chicago, R. R.	10.50 to 11.00
Cinci., agri. del.	8.50 to 9.00
Cinci., R. R. del.	9.25 to 9.75
Cleveland, rail	11.50 to 12.00
Detroit, auto	8.50 to 9.00
St. Louis, R. R.	9.50 to 10.00
Eastern Pa., R. R.	13.00 to 14.00

RAILS FOR ROLLING

5 feet and over

Birmingham	10.00 to 11.00
Boston, dealers	6.75 to 7.25
Buffalo	9.00 to 9.50
Chicago	11.00 to 11.50
Eastern Pa.	13.00
New York, dealer	8.00 to 8.25
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES

Chicago, cut	10.50 to 11.00
St. L., No. 1	8.50 to 9.00

LOW PHOS. PUNCHINGS

Buffalo	11.00 to 11.50
Chicago	11.00 to 11.50
Eastern Pa.	13.00 to 14.00
Pittsburgh	15.00 to 15.50

STRIP STEEL
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PHOENIX SERVICE: has come to mean a continuing interest in every roll we sell until its full life has been obtained.

Recently modernized Open Hearths, Air Furnaces, Grinding and Finishing equipment enable us to lead the present day trend toward more durable rolls which will give better finish and reduced rolling mill costs.

Our latest development, PHOENIXLOY, a uniformly hard roll, is giving service today in many flat rolling mills which only two years ago was thought impossible.

Phoenix Metal Rolls
Phoenix "A" Rolls
Phoenix "K" Rolls
Phoenix Tube Mill Rolls
Phoenix Chill Rolls
Phoenix Nickel Chill Rolls
Phoenix Steel Rolls
Phoenix Sand Rolls

PHOENIXLOY
(Uniformly Hard)

PITTSBURGH ROLLS CORPORATION

» » » » PITTSBURGH, PA. « « « «

with mills giving little indication of making new purchases soon. Some are using more hot metal and do not expect to re-enter the market this month. In view of light demand, scrap is more freely available at prices below previous levels and following the recent decline of 50 cents in heavy melting steel to $9.50 to $10, most other grades are correspondingly lower.

Boston—Dullness marks the New England scrap trade, the largest steelworks consumer having practically withdrawn from the market for melting steel. Some miscellaneous scrap is being loaded steadily for barge shipment to eastern Pennsylvania. Textile cast and other cast grades are steady, but price weakness has appeared in spots, notably for blast furnace borings and turnings and machine shop turnings.

New York—Scrap activity is largely in buying for boat loading for export and shipment by water to the Buffalo district, mostly No. 2 melting steel. For export to Italy, 12,000 tons of that grade have been sold, the dealer paying $7 at New York and $7.50 in New Jersey, barge. Most eastern steel mills have held up shipments or are taking limited shipments only. Prices on some grades are nominal while others are barely steady on small volume.

Philadelphia — Scrap buying generally continues light but with sufficient trading to indicate a spread of $10.50 to $11.50 on No. 1 heavy melting steel and $9.50 to $10.50 on No. 2. Machine shop turnings are down slightly to $7.50 to $8.50 delivered; hydraulic sheets to $10.50 to $11; and No. 1 railroad wrought to $11 to $12. Low phosphorus steel crops are holding at $14 to $15. A Harrisburg, Pa., consumer recently closed on 2000 tons of heavy breakable cast at $11, delivered.

Buffalo—Demand for scrap is confined to odd cars, although there have been nibbles indicating some buying is not far distant. The lack of tonnage purchases is tending to lower prices fractionally although quotations are strictly nominal.

Detroit—The iron and steel scrap market here is practically at a standstill. More to bring prices into line with other districts than to indicate a definite weakness, some quotations have been reduced 25 to 50 cents, No. 1 steel and hydraulic compressed bundles being $8.75 to $9.25; and No. 1 new busheling $7.50 to $8. Dealers remain confident that within several weeks prices will again be on the rise.

Cincinnati — Quotations on iron and steel scrap tend lower, on continued weakness created by dull demand. Quotations are being con-

tinued, but are nominal. It is understood the Louisville & Nashville has sold 4500 freight cars and 250 locomotives to David J. Joseph Co., Cincinnati, for scrapping. This should yield 55,000 to 60,000 tons of scrap.

St. Louis—While dealers' quotations have not been changed, the general tone of the iron and steel scrap market is easier than a week ago. There is an almost total absence of buying, all classes of users being disposed to mark time, awaiting more definite information relative to labor and other developments arising from operation of NRA codes.

Birmingham, Ala.—Activity in steel and iron scrap has abated slightly but prices are holding firmly. No. 1 heavy melting steel and No. 1 cast are most active grades.

Railroads

C. & O. Rails Are Placed; State May Finance Cars

Track Material Prices, Page 45

Definite award of 31,481 tons of standard steel rails by Chesapeake & Ohio has been made. Carnegie Steel Co. and Illinois Steel Co. 16,350 tons, of which the greater part will be rolled by Illinois; Inland Steel Co. 10,672 tons, and Bethlehem Steel Co. 4459 tons.

Current report has it that the government may finance railroads in the purchase of 100,000 freight cars. This is if interest to steel mills as the required steel would run to something like 2,500,000 tons. Persistent reports have been coming out for some time that railroads will be in the market soon for cars.

With the light rail classification now taking sizes up to and including 60 pounds, further improvement in light rail demand is expected. Western roads are said to be preparing programs for purchase of rails and equipment.

General steel buying for repair and other miscellaneous uses is light. Some small releases against rail orders have been filed but they are not sufficient to keep mills active.

Car Orders Placed

Western Fruit Express, 100 steel underframes to Minneapolis-Moline Power Implement Co., Minneapolis.

Locomotives Placed

Weyerhaeuser Timber Co., Tacoma, Wash., one 90-ton steam locomotive, to unnamed builder.

One of 30,000 STAMPINGS

Produced by

CROSBY Stamping Engineers

Since 1896 the Crosby plant has been devoted, exclusively, to designing and producing Sheet Metal Stampings. Avail yourself of this experience. Send us your next stamping problem and watch results.

THE CROSBY COMPANY

BUFFALO, N. Y.

Branch Offices:

New York, Philadelphia, Pittsburgh,
Cleveland, Detroit, Chicago.

WOODEN TANKS

FOR

PICKLING PURPOSES

Every pickling and acid storage tank we produce is made to order. Only perfect timbers are used—tie rods, nuts and washers are made of acid resisting bronze or Monel metal.

We design and manufacture tanks lined with lead, rubber or protective wood.

Consult us regarding your tank problems.

A Smooth Surface *for Trucking* Yet a Non-Skid Surface *to the foot*— such is the versatility of

CENTRAL "*Knobbyette*" NON-SKID STEEL FLOOR PLATES

due to the small perfected and patented design. No truck caster is too small or light to be affected by the design. *Send for a sample.*

Central Iron & Steel Co.

Harrisburg, Penna.

Branches in Principal Cities.

MICHIGAN

COLD DRAWN SEAMLESS STEEL TUBING

Manufacturers of cold drawn seamless steel tubing in any form and to any carbon or alloy specification in sizes from 3″ outside diameter down to 1/16″ and in wall thickness from 5/8″ to 26 gauge.

ROUNDS • SQUARES
HEXAGONS • SPECIAL SHAPES

MICHIGAN • • • •
SEAMLESS TUBE COMPANY

A Michigan Corporation

Mills and General Offices: South Lyon, Michigan
(Suburb of Detroit)

Sales Representatives:

Chicago . Cincinnati . Cleveland . Detroit . Indianapolis
Memphis . New York . St. Louis . Washington, D. C. . Los Angeles

Barium Steel Co. To Reclaim Stainless Scrap

Barium Steel Corp., Canton, O., recently organized, with Lawrence K. Diffenderfer president, is preparing to manufacture stainless steel from stainless steel scrap by a new process, including use of a special type of furnace and introduction of barium during the melting process.

The plant formerly occupied by Canton Steel Foundry Co., at Fifteenth street and Allen avenue, Canton, has been bought, with 36 acres and buildings bought from the Canton Steel Products Co. and six acres from the Luntz Iron & Steel Co.

Two furnaces of 3½ tons capacity already in the plant will be rebuilt to meet new requirements and two additional furnaces of 10 and 20 tons capacity will be built. A rolling mill will also be installed. Various patents and rights on processes are owned by the company. It is planned to produce blooms, billets, sheet bars, rounds and semifinished products of stainless, alloy, special alloy and carbon steels.

Mr. Diffenderfer, president, has been connected with Lackawanna Steel Co., American Iron & Steel Co., Empire Steel & Iron Co., Thomas Iron Co., Wharton Steel Co. and Vanadium Corp. of America. He was treasurer and director of the latter for seven years. Charles K. Middleton is vice president in charge of operations. He has been connected with Carnegie Steel Co., American Steel & Wire Co. and Penn-Seaboard Steel Corp. Lawrence C. Miller is secretary and treasurer. He has served in similar capacities with Vanadium Corp. of America and other companies.

Roosevelt To Try To Get Lower Price on Rails

President Roosevelt late Friday stated that he had discussed with Railroad Co-ordinator Eastman and representatives of railroads the question of railroad maintenance, with the possibility of obtaining a specific loan from PWA to railroads for the purchase of steel rails, provided the price of rails can be reduced. He said that the price of rails has not been reduced during the recent depression and that he will talk with steel producers about this. Mr. Eastman approves, the President said, and the railroads are keen about such a loan.

McKeesport Tin Plate Co., McKeesport, Pa., has declared a regular quarterly dividend of $1, payable Oct. 2, to record Sept. 15.

Men of Industry

(*Concluded from Page* 21)

engineer in charge of the power transformer engineering department of the General Electric Co., Pittsfield, Mass. He became associated with the General Electric Co. in 1906.

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J. R. Patterson, formerly manager of steel mill roll sales for Mackintosh-Hemphill Co., Pittsburgh, has been appointed general manager of sales for the company.

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L. A. Pease, for 25 years associated with the engineering staff, Fairbanks, Morse & Co., Beloit, Wis., has resigned to become maintenance engineer, A. O. Smith Corp., Milwaukee.

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Emil Ferber, former branch manager of the Kawneer Manufacturing Co., Niles, Mich., manufacturer of store fronts, has been appointed manager of the store front division of the Dwelle-Kaiser Co., Buffalo.

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R. Lewis Giebel has been appointed representative for the Morton Manufacturing Co., Muskegon, Mich., in the New York metropolitan district, with offices at 1501 Undercliff avenue, Bronx, New York.

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F. A. Galbraith, who has been associated with the sales department of the MacWhyte Co., Kenosha, Wis., for many years, has been promoted to district representative for Minnesota and upper Michigan, with headquarters at Minneapolis. The company make wire rope and cable.

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B. E. Kibbee, vice president in charge of sales, Sharon Steel Hoop Co., Sharon, Pa., has been appointed executive vice president of the company, and Arthur Booth, general sales manager, has been appointed to the post left vacant by Mr. Kibbee's advancement. Thomas Galbreath, assistant sales manager, has succeeded Mr. Booth. Milton Hughes, general manager in charge of operations, has been appointed vice president in charge of operations. These changes follow upon the decision of Severn P. Ker to retire from the chairmanship of the company.

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W. H. Sommer, A. G. Heidrich and D. P. Sommer were re-elected directors of the Keystone Steel & Wire Co., Peoria, Ill., at a meeting of stockholders Aug. 31. At a directors' meeting Sept. 2 the following officers were elected: W. H. Sommer, chairman of the board; Hiram E. Todd, president; W. C. Buchanan, vice-president and general manager; Henry G. Sommer, vice president and treasurer; C. W. La Porte, vice president; D. P. Sommer, secretary; John Hinnen, comptroller; G. H. Greene, assistant treasurer; G. W. Racine, assistant secretary and treasurer.

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Harvey B. Bower has been appointed Chicago district manager of the National Twist Drill & Tool Corp., Detroit, with offices at 1144 Washington boulevard, Chicago. He formerly was Milwaukee representative of the L. S. Starrett Co., Athol, Mass., manufacturer of precision instruments.

Died:

(*Concluded from Page* 20)

Works, Syracuse, N. Y., last week at his home near Syracuse. He retired at the age of 90 after operating the industry of which he was head for more than 50 years.

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William Burg, 67, long engaged in the iron and steel trade in St. Louis, and since 1896 in business there as an iron broker, in St. Louis, Aug. 30.

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Edward W. Althof Jr., vice president, Henry Althof's Sons Co., Erie, Pa., ornamental iron works, at Meadville, Pa., Aug. 28.

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James C. Dick, 61, president, Silica Sand Co., Franklin, Pa., in that city, Sept. 6. He was identified with steel and foundry interests in Buffalo before organizing the sand company some years ago.

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Frank W. Miller, 55, for more than 28 years associated with industrial operations, and until two years ago vice president of the Sloss-Sheffield Steel & Iron Co. in charge of by-product coke works, in Birmingham, Ala., Sept. 4.

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Stephen Allsopp, 63, who went to work in 1907 for the Tennessee Coal, Iron & Railroad Co., in Birmingham, Ala., recently. He was born at Abercorn, South Wales, where he worked for a long while in tin plate mills.

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Henry W. Darling, 86, former treasurer and vice president of the General Electric Co., in Schenectady, N. Y., Sept. 4. He was associated with General Electric's financial affairs from the time the company was organized in 1892.

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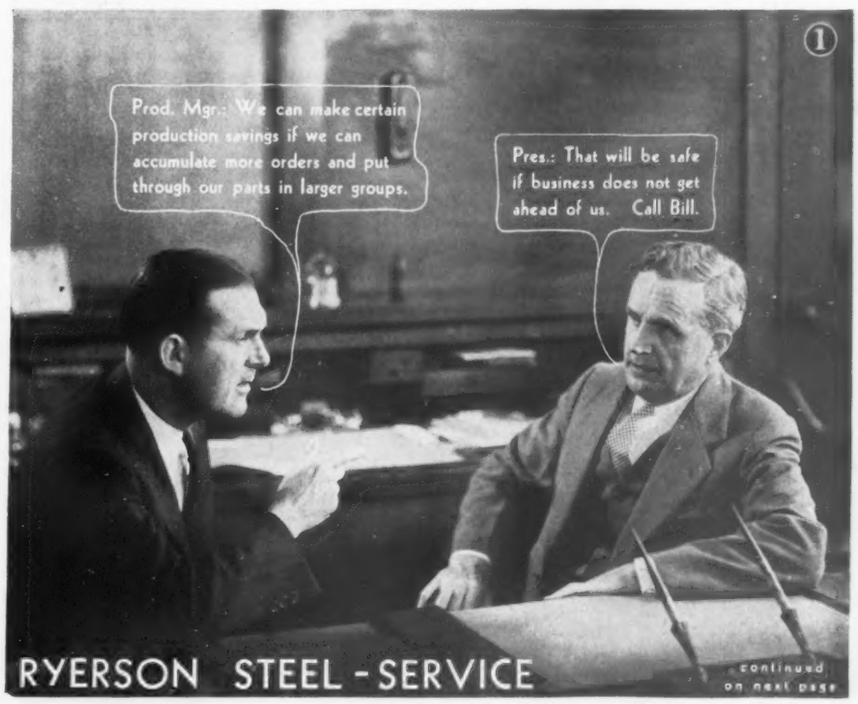
Fred Griffiths, for more than 40 years engaged in the iron and steel roll business and widely known in the rolling mill industry in the United States and Canada, at Pittsburgh, Sept. 6. He was born in England and came from a family which for several generations was active in the steel industry in Wales and England. His first position was with the Illinois Steel Co., Chicago, but he went to Pittsburgh in 1894 and until 1930 was associated with the E. A. Garrison Foundry Co. and its successor, the Mackintosh-Hemphill Co., Pittsburgh. In 1930 he joined the Continental Roll & Steel Foundry Co., East Chicago, Ind., and in 1932 became connected with the Pittsburgh Steel Foundry Corp., Glassport, Pa. He was a member of the American Iron and Steel institute.


1
Prod. Mgr.: We can make certain production savings if we can accumulate more orders and put through our parts in larger groups.
Pres.: That will be safe if business does not get ahead of us. Call Bill.
RYERSON STEEL - SERVICE
continued on next page

Pig Iron

(*Concluded from Page* 14)

trict A base, then the District A furnace is permitted to meet this delivered price, without reducing its published base price.

In effect, the action of District B furnace has been to take the consumer out of District A and place him in District B. Thus, the extent of any district is dependent on the relation of freight rates and the base prices published by various producers. The district lines may shift at any time. This applies to steel as well as pig iron.

Base prices in all instances apply as a minimum in their own respective districts. For example, Producer A, with a base price of $18, need not quote as low as $18, even to a consumer in his own switching area. If he quotes a higher price, however, he takes a chance of losing the business to outside producers who may quote a delivered price based on $18 at Producer A's furnace, plus the switching rate.

Freight rates under the new code system assume greater importance than ever before, because in connection with published base prices they determine the minimum delivery prices at every consuming point.

No furnace is restricted from publishing any base price it desires, to become effective on ten days' notice. If the change is sufficiently important it may have the effect of shifting a number of consuming points from one district to another, and the competition thus engendered may have far-reaching consequences.

One feature of the code that some pig iron and steel producers do not like is that of giving ten days' notice. In a rising market, it is believed this will drive in considerable "last minute" business, and possibly cause sellers to withdraw from the market for the ten-day period. In a declining market it would serve notice of lower prices and thus lead buyers to wait. This might result under certain circumstances in a virtual moratorium on sales for ten days.

In making contracts consumers must specify definite tonnages within definite time limits. Vague phrases such as "requirements" no longer "go" under the code. Sellers believe the effect of this undoubtedly will be to reduce the number of contracts, or firm commitments, and to increase the number of short-term, or spot sales.

In the revised tables of pig iron base prices, and prices delivered to consumers from nearest basing points, published on page 46 in this issue of STEEL, switching charges and surcharges are not included, except in the few instances where stated.

Bolts and Nuts

(*Concluded from Page* 18)

ployed in or about the plants of the industry.

Article VI deals with the basis of quotations and sales. It provides that members of the code shall establish a trade practice of issuing quotations and invoices on the basis of percentage discounts from the standard gross or list prices on varying classes and sizes of bolts, nuts and rivets to be known as "Manufacturers' Standard Bolt, Nut and Rivet Lists," and referred to in the code as "Gross Lists." Rivets ½ in. diameter and larger, commonly known as heavy rivets, shall be sold at a base price per pound subject to published standard extras. Track bolts ¾ in. diameter and larger, heat treated, shall be sold at a base price per pound subject to published standard extras. The gross list and standard extras are to be prepared after an engineering study and scientific analysis of costs.

Section 2 provides that no extras shall be waived by any member of the code.

Section 3 establishes Birmingham, Chicago, Cleveland and Pittsburgh as basing points.

Section 3 prescribes this method of quoting prices:

The price charged to the buyer shall be the members' current price f.o.b. the nearest basing point to destination, plus the regular railroad tariff rate of freight, either carload or less-than-carload depending on the shipment irrespective of actual means of transportation, except on shipments to Pacific Coast points where the rail and water rate from Birmingham to point of destination shall be added. This shall not apply to sales or shipments made to common carriers which come under the supervision of the interstate commerce commission, of material for their own consumption. On sales and shipments made to common carriers as above described, the amount of freight to be added from basing points shall be determined by the executive committee, and shall be calculated on what is commonly known as line-haul costs.

No member shall equalize freight charges based on what is commonly known in the trade and under the interstate commerce act as fabrication in transit rates.

2
Sales Mgr: Orders are increasing and customers are calling for prompt delivery. Do not delay.
Pres.: What would you think of holding orders for larger grouping?
Prod. Mgr.: Production costs are also increasing so I will put everything through at once.
RYERSON STEEL-SERVICE
continued on next page

Biggert Heads Rolling Mill And Allied Association

A trade association covering the steel mill equipment field and known as the Rolling Mill Equipment and Machinery Manufacturers association has been formed at Pittsburgh and will co-operate with NRA through the Machinery and Allied Products Trade association, Chicago. Code for the rolling mill equipment group was submitted to the Chicago association on Sept. 6.

Officers of the rolling mill equipment association are: President, F. C. Biggert, Jr., vice president, United Engineering & Foundry Co., Pittsburgh; vice president, A. S. Morris, president, Morgan Engineering Co., Alliance, O.; treasurer, R. C. Detwiler, assistant secretary and assistant treasurer, United Engineering & Foundry Co., Pittsburgh; and secretary, C. H. Paul, assistant treasurer, Mackintosh-Hemphill Co., Pittsburgh.

The executive committee, of which Mr. Biggert is chairman, is composed of L. Iverson, president, Mesta Machine Co.; M. I. Arms, president, Aetna Standard Engineering Co.; Frank

Cordes, president, Lewis Foundry & Machine Co.; H. V. Blaxter, chairman of the board, Mackintosh-Hemphill Co.; and Mr. Biggert.

Regulations Clarify Status of Jobbers

(*Concluded from Page* 16)

Iron and Steel Industry approved August 19, 1933, by the President of the United States of America, hereinafter called the Steel Code; and

WHEREAS the Buyer represents that it is (or is about to become) a jobber within the meaning of that term as used in Section 4 of Schedule E of the Steel Code and as defined in Regulations No. 1, prescribed under said Section by the Board of Directors of American Iron and Steel Institute, a New York membership corporation, on Aug. 29, 1933, a copy of which Regulations (without the schedules thereto attached) is annexed hereto as Schedule A; and

WHEREAS the Buyer desires from time to time to purchase from the Seller for resale some of the following described products, which are products described or referred to in Section 3 of Article I of the Steel Code:

AND WHEREAS the Seller desires to sell such products to the Buyer from time to time at the respective published base prices of the Seller therefor less the appropriate deduction to jobbers specified in the published price list of the Seller as at the time in effect under the Steel Code, but only on condition that the Buyer execute this Agreement as required by the provisions of Section 4 of Schedule E of the Steel Code and of said Regulations No. 1;

NOW, THEREFORE, in consideration of the premises, the parties hereto agree as follows:

1. The Buyer agrees that any product which the Buyer shall purchase from the Seller and in respect of which any such deduction shall be allowed shall be purchased by the Buyer solely for resale and that it shall not be used, processed or fabricated by or for the Buyer. For the purpose of this Agreement, the terms "processed" and "fabricated" as used in this paragraph 1 shall not include cutting to length or size, bending or, in the case of pipe, threading or coupling.

2. The Buyer agrees that it will not, without the prior approval in writing of said Board of Directors, sell any such product to any purchaser at a price or upon terms and conditions more favorable to such purchaser than the price, terms and conditions at which the Seller might then sell such product to such purchaser in conformity with the provisions of the Steel Code.

3. The Buyer agrees that it will not sell any such product in combination or conjunction with any other goods or the rendering of any service, unless (*a*) the price charged and collected by the Buyer for any such other goods and/or services shall be at least a fair price therefor and (*b*) the respective quantities of, and the respective prices charged and collected by the Buyer for, such product and such other goods and or services shall be separately stated in the invoice covering the sale and/or the rendering thereof in such manner that it can readily be determined therefrom whether the Buyer is strictly performing the covenant contained in the foregoing paragraph 2.

4. The Buyer agrees that, if it shall cut to length or size or bend or, in the case of pipe, thread or couple any such product, the Buyer will not, without prior approval in writing of said Board of Directors, sell the resultant product to any purchaser at a price or upon terms and conditions more favorable to such purchaser than the price, terms and conditions at which the Seller might then sell a similar product to such purchaser in conformity with the provisions of the Steel Code.

5. The Buyer agrees that it will not sell for delivery in the United States any imported product similar to any product purchased under this Agreement, unless the Buyer shall quote and sell such imported product as an imported product and unless the contract of sale, if any, and the invoice covering the sale thereof shall state plainly that it is an imported product.

6. The Buyer agrees that, if, while this Agreement shall be in effect, the Buyer shall cease to be a jobber within the meaning of that term as defined as aforesaid, the Buyer will promptly notify the Seller of that fact.

7. The Buyer agrees that, if it shall sell or use any such product in violation of any provision of this Agreement, the Buyer will pay to the Treasurer of said American Iron and Steel Institute as an individual and not as treasurer of such Institute, in trust, as provided in the Steel Code, as and for liquidated damages, the sum of Ten dollars ($10) per ton of such product which the Buyer shall have so sold or used.

8. The Seller agrees that at any time upon request it will advise the Buyer in writing as to the price at which the Seller at that time might sell, pursuant to the provisions of the Steel Code, for delivery at a specified place any product covered by this Agreement.

9. The parties hereto agree that this Agreement shall not be in effect at any time while the Steel Code shall not be in effect.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be signed in their respective corporate names by their respective Presidents or one of their respective Vice-Presidents and their respective corporate seals to be hereunto affixed and to be attested by their respective Secretaries or one of their respective Assistant Secretaries, as of the day and year first above written.

[the Seller]
by
President.

Attest:
Secretary.

[the Buyer]
by
President.

Attest:
Secretary.

[NOTE: A copy of Regulations No. 1, without Schedules 1, 2 and 3, must be annexed to this form of agreement when it is executed.]

SCHEDULE 2

This is a form of agreement under Section 4 of Schedule E of Steel Code, similar to that in Schedule 1 above but modified to apply where Jobber is a copartnership.

—EDITOR.

SCHEDULE 3

This is a form of agreement under Section 4 of Schedule E of Steel Code, similar to that in Schedule 1 above but modified to apply where Jobber is an individual.

—EDITOR.

3
Prod. Mgr.: This means we must have immediate shipment of materials.
Pres.: That places the responsibility with our Purchasing Agent. Prices are advancing, and it is more difficult to secure deliveries.
RYERSON STEEL-SERVICE
Continued on next page

Here and There In Industry

VANADIUM-ALLOYS STEEL CO., Pittsburgh, has announced the organization of the Vascoloy-Ramet Corp. with general offices in North Chicago, Ill., for the manufacture of tantalum carbide and production of tantalum carbide cutting tools, dies, wearing surfaces and similar products. In this new company is consolidated the research developments, abilities and experience of the tantalum carbide manufacturing divisions of Vanadium-Alloys Steel Co., Pittsburgh, the Fansteel Products Co. Inc. and Ramet Corp. of America, Chicago.

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Michigan Valve & Foundry Co., 3631 Parkinson avenue, Detroit, has changed its name to Parkinson Valve & Foundry Co.

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Igrade Condenser Mfg. Co., Rochester, N. Y., has sold its business and equipment to Continental Carbon Inc., Cleveland. Equipment is being moved to Cleveland and the plant at Rochester will be abandoned.

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S. M. Jones Co., Toledo, O., manufacturer of oilfield pumping rods and equipment, has opened a field sales and service office in the Laird building, Kilgore, Tex., in charge of L. J. Pundt and J. G. Litherland.

□ □ □

Merchants Despatch Transportation Co., subsidiary of the New York Central, with plant at East Rochester, N. Y., which has built and repaired freight and refrigerator cars since 1900, this fall will undertake the manufacture of unloading devices for use in railroad cars used for transportation of automibiles.

□ □ □

Dardelet Threadlock Corp., New York, has licensed General Electric Co. and subsidiaries to manufacture for their own use bolts, nuts and other threaded parts with the Dardelet self-locking screw thread.

□ □ □

Homestead Valve Mfg. Co. Inc., Corapolis, Pa., has appointed the F. J. Evans Engineering Co., 1305 Watts building, Birmingham, Ala., its exclusive representative for Alabama for its high-pressure spray machine.

□ □ □

Climax Molybdenum Co., Climax, Colo., has completed additions to its plant, including drying and packing plant, heating plant for mill and crusher and a hotel to accommodate 200 men. It now employs 275 workmen at this plant.

□ □ □

Allis-Chalmers Mfg. Co., West Allis, Milwaukee, feels a quickening of demand in its export business. Orders paid for in cash have been received from Australia for the first time in three years. South American inquiry is also better.

Equipment

Steel Plant Buying Light; Tool Business More Active

Chicago—Equipment markets are fairly active, though inquiries are confined to small lots. The increase in manufacturing costs resulting from higher wages is seen as having only a moderately adverse effect upon equipment purchases, it being pointed out that machinery buying for the past several years has been dictated by necessity and that users will continue with this policy for some time in the future. Steel plant purchases comprise mainly miscellaneous products and equipment, such as rolls, ingot molds and supplies rather than machinery.

Cleveland—Slight concern is felt over the perceptible slowing up in sales of machinery and equipment, and it is thought generally that after Sept. 15 an upward trend will be resumed. Turret lathe manufacturer here reports additional business booked for Japan. Approval of the code now in Washington for the Machinery and Allied Products institute may precipitate further price increases in machinery, although this is not confirmed by builders. Automotive plants have been slow to purchase new equipment, being satisfied to retool present machines for new models.

Pittsburgh—Demand for rolls has been practically the only feature of the steel mill equipment market over the past several weeks. Declining trend, however, is noted in this demand, which is to be expected since mills are buying only those rolls they need for immediate use and have not started on a policy of stocking spares. Demand for the heavier rolling units has noticeably died down. Promise is still held forth that rehabilitation work in some mills in this district may be released soon but it is more likely that this will be delayed until producers find themselves operating profitably for a sustained period.

Boston — Inquiry continues fair, but orders are developing slowly. Textile mill equipment builders are active. In other lines buying is accounted for by a scattering of individual orders, generally for one machine at a time. Special machines comprise the bulk of sales, together with some grinding equipment for foreign account. Gallmeyer & Livingston Co., Grand Rapids, Mich., is low on three toolroom cutter grinders and a motor-driven grinder for the naval station shops, Newport, R. I.

New York—Inquiry for machine tools has improved slightly with more business being figured. Some orders are coming in, generally for one or two units at a time. There are no sizable lists out, however, and interest is largely centered in special machinery. Fresh inquiry for the navy includes three drilling and milling machines and two precision horizontal boring, drilling and milling machines, bids Sept. 15. More than 150 tools will be required for navy ships under contract, but will not be active for many months.

Purchasing Agent: It's not easy, but you will not have to wait for the Purchasing Department. We'll order the steel from Ryerson and be sure of immediate delivery.
President: We're counting on you, Fred.
Sales Mgr.: Glad you're speeding production. Quick deliveries make satisfied customers.
4
RYERSON STEEL-SERVICE
JOSEPH T. RYERSON & SON Inc.

Pacific Coast

Demand Growing as Financing Is Completed—Sales Volume Nears Year's High—Boulder Dam and Bridges Furnish Large Tonnages—Northwest Projects Being Closed

San Francisco—(*By Air Mail*)—It is understood that Pacific Coast steel mills will find it difficult to obtain additional experienced steel mill workers under the NRA. At least one steel plant now has no applications on file for work by skilled workmen.

Activity is especially pronounced in reinforcing bars, plates and shapes. Interest of sheet mill representatives center around the award of 2700 tons of black sheets for the 1934-35 requirements of California for license plates, awarded to B. W. Norton Mfg. Co., Oakland, Calif., and Kittle Mfg. Co., Los Angeles.

Reinforcing bar awards were the heaviest in over a month and the second largest for the year, totaling 4738 tons. Pacific Coast Steel Corp. took 2710 tons and Colorado Fuel & Iron Co. 1243 tons for Boulder dam.

Plate lettings were the largest in over two months and the second heaviest of the year, more than 9600 tons being placed. Moore Drydock Co., Oakland, Calif., secured the subcontract for all the caissons for the San Francisco-Oakland bridge, involving over 9000 tons of plates and 3700 tons of shapes. It has sublet most of the plate work for 15-feet diameter dredging wells to the Western Pipe & Steel Co. and most of the structural work to the Judson-Pacific Co. Consolidated Steel Corp. took 200 tons for stills for the Union Oil Co. at Oleum, Calif. Prices are firm at 2.10c, c.i.f.

Important structural awards include 1256 tons additional for caissons for the San Francisco-Oakland bridge to Moore Drydock Co. Bids have been opened on 1000 tons of shapes and 3000 tons of plates for a ship for Swayne & Hoyt, San Francisco. Bids have been opened on 190 tons for a bridge in Conconino county, Arizona. Bids open Sept. 20 for 275 tons for a bridge over the Russian river in Sonoma county, California. Wide flange material is quoted at 2.20c, c.i.f., and standard material at 2.10c.

Northwest Work Grows

Seattle—Funds for public works are being released and increased activity and employment are apparent in the Pacific Northwest. State of Washington this week awarded $900,000 in grading, crossing, paving and bridge building projects.

Awards this week include 900 tons of shapes for a state bridge at Culbertson, Mont., to McClintic-Marshall Corp., Bethlehem, Pa., and 130 tons of reinforcing for the same project to Pacific Coast Steel Corp., Seattle. American Cast Iron Pipe Co., Birmingham, Ala., booked 150 tons of 4, 6 and 10-inch centrifugal monocast pipe for Olympia, Wash.

Business pending includes 825 tons of plates and shapes for a motorship for the Northland Transportation Co., Seattle, and 500 tons of structurals and 140 tons of reinforcing for state bridges, general contract awarded to West Coast Construction Co., Seattle. The state is considering bids for 160 tons of sheets for license plates. The low bid was submitted by Seattle Steel Co. and Pacific Coast Steel Corp., representing Bethlehem Steel Co., at 3.39½c for No. 27 gage and 3.24½c for No. 24 gage, but this tender was withdrawn.

Steel in Europe

Definite Upturn in British and Continental Markets

London—(*By Cable*)—Inquiry for steel and iron products is expanding markedly following the summer recession. Foundry and hematite pig iron exports are increasing slightly but foreign competition is active. Home demand practically absorbs present production. Semifinished steel business is reviving as Continental competition is checked by the fall in exchange. Finished steel exports are irregular, but the outlook is more promising. A slight improvement is marked in the sheet market and demand for structural steel is better.

The Continent reports export markets calm but Scandinavian, Italian, Balkan and Japanese demand is more active. French steelworks are obtaining better financial results under present conditions.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Sept. 7

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
		£ s d		£ s d
PIG IRON				
Foundry, 2.50-3.00 Silicon	$13.31	2 18 6	$8.27	1 14 0
Basic bessemer	12.29	2 14 0*	7.30	1 10 0
Hematite, Phos. .03-.05	13.42	2 19 0	....	.....
SEMIFINISHED STEEL				
Billets	$22.75	5 0 0	$11.44	2 7 0
Wire rods, No. 5 gage	34.13	7 10 0	21.90	4 10 0
FINISHED STEEL				
Standard rails	$35.26	7 15 0	$26.77	5 10 0
Merchant bars	1.37c	6 15 0	.66c	3 0 0
Structural shapes	1.50c	7 7 6	.61c	2 15 0
Plates, †¼ in. or 5 mm.	1.67c	8 5 0	.86c	3 18 6
Sheets, black, 24 gage or 0.5 mm.	1.83c	9 0 0	1.27c	5 15 0
Sheets, gal., 24 gage, corr.	2.23c	11 0 0	1.60c	7 5 0
Bands and strips	1.57c	7 15 0	.83c	3 15 0
Plain wire, base	1.78c	8 15 0	1.18c	5 7 6
Galvanized wire, base	2.13c	10 10 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	2.44c	12 0 0	1.27c	5 5 0
Tin plate, box 108 lbs.	$ 3.81	0 16 9	.....	.....

British ferromanganese $82 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

		£ s d	French Francs		Belgian Francs		Reich Marks	
Fdy. pig iron, Si. 2.5	$14.22	3 2 6*	$11.84	210	$12.06	300	$21.62	63
Basic bessemer pig iron	13.42	2 19 0*	11.00	195	11.26	280	23.85	69.50
Furnace coke	3.07	0 13 6	6.77	120	4.42	110	6.61	19.25
Billets	22.75	5 0 0	22.84	405	17.69	440	33.12	96.50
Standard rails	1.67c	8 5 0	1.82c	700	1.98c	1,100(b)	2.06c	132
Merchant bars	1.40c	6 17 6	1.46c	560	.96c	535	1.72c	110
Structural shapes	1.78c	8 5 0	1.43c	550	.96c	535	1.68c	107.50
Plates, †¼-in. or 5 mm.	1.73c	8 10 0	1.77c	680	1.22c	675	1.98c	127
Sheets, black	2.03c	10 0 0§	2.21c	850‡	1.35c	750‡	2.25c	144‡
Sheets, galv., corr., 24 ga. or 0.5 mm.	2.54c	12 10 0	3.77c	1,450	2.61c	1,450	5.77c	370
Plain wire	1.78c	8 15 0	2.94c	1,130	2.34c	1,300	2.76c	177
Bands and strips	1.93c	9 10 0	1.61c	620	1.22c	675	1.98c	127

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price.
British quotations are for basic open-hearth steel. Continental usually for basic-bessemer steel.
a del. Middlesbrough. b Since January

Warehouse

Price Changes Await Code; Trade Is Fairly Steady

Pittsburgh—Failure of the steel code to embody extras for small quantities of plates and shapes, such as now are in effect on both hot-rolled and cold-drawn bars in 6000-pound lots and less, has been a distinct disappointment to warehouse interests here. Since this quantity schedule of extras had been in effect on bars, both warehouses and mills had benefited. The entire schedule of warehouse prices on steel is unchanged in this district pending acceptance of the American Warehouse association's code and subsequent filing of warehouse prices.

Chicago—The holiday period retarded sales slightly, and September business is expected to decline from the August volume, which was larger than that of July. A strong revival in October is confidently anticipated. Warehouse prices are not affected by recent mill revisions.

Cleveland—Despite many advances in mill prices of finished steel, warehouses have not changed prices, and it is not expected they will do so until they file prices under the warehouse code. Final action on the code is expected shortly. Labor day cut in on business, and volume is less than in the corresponding days in August.

New York—Price revisions upward on several steel products are expected to follow adjustments by mills, although such action will await clarification of new quotations. Progress is being made toward stabilizing bolt, nut and rivet prices by several leading distributors. Except for declines caused by the holiday, September volume is up to that of last month.

Philadelphia—Warehouse trading continues to reflect the dullness which has settled over practically all steel markets as a partial result of confusion in the adoption of the new prices and extra lists.

Detroit — Warehouse business in iron and steel continues at about the August level. A slight letdown developed over Labor Day, but the outlook is that demand will increase over the remainder of the month.

Cincinnati — Demand from warehouse, affected only slightly by the holiday, continues at about the August rate. Individual orders tend to a light tonnage. Prices are unchanged.

St. Louis—Iron and steel warehouse interests report business somewhat more spotty than heretofore but with average volume about on a parity with August.

Warehouse Quotations at Leading Centers, in Cents Per Pound

STEEL BARS

Baltimore*	2.60c
Boston††	2.65c
Buffalo	2.95c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.40c
Los Ang.	3.30c
New Orleans	2.65c
New York‡ (d)	3.10c
Philadelphia*	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Fran.	3.35c
Seattle	3.15c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore*	2.60c
Boston	3.25c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia*	2.60c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.35c-3.00c
Boston	2.75c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.00c-2.45c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.10c
New Orleans	2.75c
Los Ang., lcl	2.40c
New York	2.65c-3.10c
Phila.	2.62½c
Pittsburgh	2.60c
San Fran. cl.	2.00c
San Fran. lcl	2.40c
Seattle	3.15c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore*	2.60c
Boston††	2.75c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	2.65c
Los Ang.	3.30c
New Orleans	3.50c
New York(d)	3.10c
Philadelphia*	2.60c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.35c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

PLATES

Baltimore*	2.60c
Boston††	2.75c
Buffalo	3.20c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼ in. and thicker	2.95c
Cleve., 3/16-in	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.30c
New Orleans	3.50c
New York (d)	3.30c
Philadelphia*	2.60c
Phila. floor	4.35c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	3.35c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.50c

NO. 10 BLUE

Baltimore*	2.75c
Boston††	2.65c
Buffalo	3.10c
Chattanooga	3.44c
Chicago	2.85c
Cincinnati	3.05c
Cleveland	2.75c
Det., 8-10 ga.	2.90c
Houston	3.35c
Los Ang.	3.45c
New Orleans	3.25c
New York	3.00c
Portland	3.75c
Philadelphia*	2.75c
Pitts.**	2.75c
San Fran.	3.53c
Seattle	3.75c
St. Louis	3.10c-3.25c
St. Paul	3.45c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.25c
Boston††	3.60c
Buffalo	3.25c
Chattanooga	3.50c
Chicago	3.45c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.30c
Los Ang.	4.05c
New York	3.65c
Philadelphia*†	3.30c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.15c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.695c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	3.75c
Buffalo	4.00c
Boston††	4.15c
Chattanooga	3.95c
Chicago	4.00c-4.10c
Cincinnati	4.15c
Cleveland	3.85c
Detroit	3.85c
Houston	3.57c
Los Ang.	4.65c
New Orleans	4.25c
New York	4.00c
Pitts.**	3.75c-4.00c
Portland	5.00c
San Fran.	4.75c
Seattle	5.00c
St. Louis	4.25c
St. Paul	4.19c
Tulsa	5.10c
Philadelphia*†	3.75c

†BANDS

Baltimore	2.90c
Boston††	3.15c
Buffalo	3.30c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	2.85c
Los Ang.	3.80c
New Orleans	3.00c
New York(d)	3.30c
Philadelphia	2.90c
Pittsburgh	2.95c
Portland	3.65c
San Fran.	3.15c
Seattle	3.65c
St. Paul	3.20c
Tulsa	3.45c
St. Louis	3.20c

†HOOPS

Baltimore	2.80c
Boston	4.90c
Buffalo	3.55c
Chicago	3.50c
Cincinnati	3.75c
Det. No. 14 & lighter	3.65c
New York	3.30c
Philadelphia	3.15c
Pittsburgh	3.60c
Seattle	5.15c
St. Paul	3.75c

COLD FIN. STEEL

Baltimore (c)	3.33c
Boston (g)	3.70-4.20c
Buffalo	3.00c
Chattanooga*	3.90c
Chicago	3.25c
Cincinnati	3.57c
Clevel'd, flats	3.40c
Do., rounds squares, hexagons	3.25c
Detroit	3.40c
Los Ang.	5.85c
New Orleans	4.25c
New York	3.79c
Philad. (c)	3.35c
Pittsburgh	3.20c
Portland (f)	4.50c
San Fran. (d)	5.85c
Seattle (f)	4.50c
St. Paul	3.20c
St. Louis	3.61c
Tulsa	4.65c

COLD ROLL. STRIP

Boston 0.100 in., 500 lb lots	5.20c
Buffalo	5.25c
Chicago (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(a) Rounds, hex, only.
(b) Net base straightening, cutting boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
(f) Rounds only.
(g) Bessemer analysis extras not included

‡Domestic bars.
*Plus quan. extras.
**Under 25 bundles.
*†50 or more bundles.

†New extras apply.

††Base 40,000 lbs., extras on less.

Prices at Detroit, Cleveland, New York, Chicago, Pittsburgh Cincinnati, Chattanooga and St. Louis on heavier lines are subject to new quantity differentials:

399 pounds and less, up 50 cents; 400 to 3999 pounds, base; 4000 to 7999 pounds, 15 cents off; 8000 to 14,999 pounds, 30 cents off; 15,000 to 39,999 pounds, 50 cents off; 40,000 pounds and over, 60 cents off.

Nonferrous Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 9.00c, Conn., for copper

Sheets	
Yellow brass (high)	14.75
Copper, hot rolled	17.12½
Lead sheets, cut to jobbers	8.25
Zinc sheets (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	16.37½
Seamless copper	16.62½
Rods	
Yellow brass (high, full turnings)	12.25
Naval brass	13.37½
Anodes	
Copper, untrimmed	14.50
Wire	
Yellow brass (high)	14.75

Old Metals

Dealers' buying prices, cents lb

No. 1 Composition Red Brass	
New York	5.00 to 5.25
Chicago	4.75 to 5.00
Cleveland	5.50 to 5.75
St. Louis	4.50 to 4.75
Heavy Yellow Brass	
New York	3.75 to 4.00
Heavy Copper and Wire	
New York	6.75 to 7.00
Chicago, No. 1	6.37½ to 6.62½
Cleveland	5.75 to 6.50
St. Louis	5.25 to 5.50
Composition Brass Borings	
New York	4.75 to 5.00
Yellow Brass Tubing	
Cleveland	4.00 to 4.50
Light Copper	
New York	5.50 to 5.75
Chicago	5.12½ to 5.37½
Cleveland	5.25 to 5.75
St. Louis	5.00 to 5.25
Light Brass	
Chicago	3.00 to 3.25
Cleveland	3.00 to 3.50
St. Louis	2.75 to 3.00
Lead	
New York	3.50 to 3.62½
Cleveland	3.00 to 3.50
Chicago	3.25 to 3.50
St. Louis	3.25 to 3.50
Zinc	
New York	2.25 to 2.50
Cleveland	2.25 to 2.75
Chicago	2.50 to 2.75
St. Louis	2.75 to 3.00
Aluminum	
Clippins, new, soft, Cleve.	13.00 to 14.00
Clippings, new, soft, Cleve.	13.00 to 14.00
Borings, Cleveland	5.00 to 6.00
Mixed cast, Cleveland	8.25 to 8.75
Mixed cast, St. Louis	8.00 to 8.50

Secondary Metals

Brass ingot, 85-5-5-5	9.00
Remelt aluminum No. 12	12.75 to 13.75

Metals

Markets Show Stability in Face Of Uncertainties—Tin In Easy Situation

New York—Remarkable stability was displayed by the nonferrous metals last week in the face of quiet demand and uncertainty over the outcome of the various fair trade practice codes. Consumers generally displayed considerable hesitancy in the matter of buying and at the same time the failure of general business conditions to improve contributed a dampening influence.

Copper—Sales of copper last week were restricted. Only light business was done from day to day. However, both producers and custom smelters held firmly to the 9.00c Connecticut, although a limited amount of metal was available at 8.75c, Connecticut. Buyers showed little interest in this resale metal but at the same time holders did not press it on the market for sale. Efforts were made to bring the copper producers and custom smelters together under a single code for the industry. Little progress appears to have been made in this direction, but additional meetings are expected to be held this week.

Lead—Sales of lead were spotty last week. On the whole, however, the market was fairly active with the leading producers booking sufficient business to equal ore intakes. The bulk of business was for September delivery but a few orders were placed into October. Demand was fairly well diversified among the various consuming lines during the week. Prices held unchanged all week at 4.35c, East St. Louis and 4.50c, New York.

Tin—Some easiness was noticeable in the straits tin market last week. Active buying was lacking and easiness in the market abroad forced prices down here. In the main prices of tin have gone contrary to the favorable statistical position reported for August.

Zinc—Prime western zinc declined further this week closing around 4.65c, East St. Louis. Demand was quiet, only scattered lots of metal being sold. Galvanizers were reluctant to enter the market in face of falling steel operations. The August statistical report showed a further sharp drop in zinc.

By-Products Firmer

New York—Naphthalene demand is light. Prices for the refined product are unchanged at 4.75c to 5.75c, but there are indications of stronger quotations for crude material. Such an advance would be passed on for refined naphthalene included in next season's contracting. Distillates are firm and unchanged. Lacquermakers continue to take good shipments of toluol. Phenol demand is routine at unchanged prices while demand for sulphate of ammonia holds well.

Coke By-Products

Per Gallon Producers' Plants, Tank Lots	**Spot**
Pure benzol	$0.22
90 per cent benzol	0.22
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.153 to 0.173
Per Pound at Producers' Plants	
Naphthalene flakes	4.75 to 5.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.20

Quicksilver Steady

New York—Quicksilver prices are unchanged in a quiet market. Small lots are $63.50 to $64.50 a flask, while round lots are available at $63. Imports during the last ten days are reported as 3400 flasks.

Nonferrous Metal Prices of the Week, Cents a Pound

Spot unless otherwise specified

	Copper			Straits Tin New York		Lead	Lead East	Zinc	Aluminum	Antimony	Ingot Nickel
	Electro., del. Conn.	Lake, del. Midwest	Casting, refinery	Spot	Futures	N. Y.	St. L.	St. L.	98-99%	Spot, N. Y.	
Sept. 2	9.00	9.12½	8.75	45.60	45.95	4.50	4.35	4.67½	22.90	6.87½	35.00
Sept. 4	Holiday	.....	.....	.....	45.95	4.50	4.35	4.67½	*22.90	6.87½	35.00
Sept. 5	9.00	9.12½	8.75	45.87½	46.25	4.50	4.35	4.67½	*22.90	6.87½	35.00
Sept. 6	9.00	9.12½	8.75	45.25	45.62½	4.50	4.35	4.67½	*22.90	6.87½	35.00
Sept. 7	9.00	9.12½	8.75	45.00	45.37½	4.50	4.35	4.65	*22.90	6.87½	35.00
Sept. 8	9.00	9.12½	8.75	44.75	45.00	4.50	4.35	4.65	*22.90	6.75	35.00

*Nominal quotation. Market range 19.90c to 22.90c

Construction and Enterprise

New York

NEW YORK—Morris Metal Products Inc. has been incorporated with 100 shares no par value to manufacture metal products, by Michael Spencer, 401 Broadway, New York.

NEW YORK—William E. Friedman Co. Inc. has been incorporated with 100 shares no par value to deal in iron, steel and metals, by Henry Woog, 150 Broadway, New York.

NEW YORK—Consolidated Bearings Corp. has been incorporated with 200 shares no par value to manufacture bearings and containers for motors, shafting, gears, axles and wheel hubs, by Samuel Komoroff, 401 Broadway, New York.

POUGHKEEPSIE, N. Y.—Fayer Corp. has been incorporated to manufacture machinery, air compressors, tools and implements, with $20,000 capital, by Adelbert W. Bailey, 11 West Prospect avenue, Mt. Vernon, N. Y.

NONSHRINK OIL HARDENING

TOOL STEEL TUBING

A saving will be realized by using our Tool Steel Tubing. Carried in stock up to 12" O.D. x 2" wall thickness. It is excellent for all classes of dies, slitters, spacers, bushings, etc.

We also supply a special tubing conforming in analysis to S.A.E. 52100 and S.A.E. 4615 designed particularly for Ball Bearing purposes. Can be furnished in Hot Rolled or Cold Drawn finish.

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Cincinnati **Pittsburgh** **Buffalo**

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ALLOY SCRAP

Such as—18% Chrome and 8% Nickel (18-8)
3½% Nickel Tungsten
15-18% Chrome Pure Nickel
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New England

NEW BRITAIN, CONN.—Stanley Works is building an addition to its plant on Whiting street, which is to be ready by Jan. 1. It will be devoted to drop forging of tools, which now is carried on at its New Jersey plant.

New Jersey

NEWARK, N. J. — Union Brass Foundry Inc. has been incorporated with 2500 shares no par value to manufacture brass products, by Charles A. Woodruff, 31 Clinton street, Newark, N. J.

Pennsylvania

NEW BRIGHTON, PA.—McDanel Refractories Mfg. Co. will rebuild burned building 40 x 130 feet, one and two stories. J. E. Martsolf, 512 Third avenue, New Brighton, Pa., architect.

Michigan

DEARBORN, MICH.—Plans are being drawn by Albert Kahn Inc., Detroit, for the proposed $1,000,000 brewery at Dearborn for the Fort Dearborn Brewing Co.

DETROIT—Goebel Brewing Co. is having plans prepared by Harley & Ellington, engineers, Detroit, for a 2-story power plant 55 x 105 feet in connection with its brewery.

DETROIT—Universal Coal Burner Co. Inc., 3946 Cass avenue, has been incorporated with $25,000 capital to manufacture coal-burning equipment, by Daniel S. Weston, 2903 Montgomery avenue, Detroit.

DETROIT—Vacuum Electric Corp., 918 United Artists building, has been incorporated with $62,500 capital to manufacture heaters and electrical equipment, by A. J. Auchterlonie, 478 Lincoln road, Gross Pointe, Mich.

KALAMAZOO, MICH. — Kalamazoo Stove Co. is spending about $7000 in foundry alterations.

MENOMINEE, MICH.—Voters have approved proposal to build a municipal electric light and power plant.

PETOSKEY, MICH.—City of Petoskey is spending about $10,000 for an auxiliary power plant and $20,000 for equipment.

PONTIAC, MICH.—Wolverine Brewing Co. is having plans for alterations to its brewing plant made by Patterson Engineering Co., Detroit.

SAGINAW, MICH.—Francis Engineering Co., Saginaw, is preparing plans for a power and water distribution system for Harrison village, Mich., to cost about $75,000.

VASSAR, MICH.—Eaton Erb Foundry Co. is building two additions, one an air compressor building and the other a cooling bed.

Indiana

INDIANAPOLIS — Enterprise Iron Works Inc. has filed an amendment to

its charter increasing capitalization to 2500 shares of no par value.

INDIANAPOLIS — Clouse Machine Products Co. has been incorporated with $10,000 capital stock to manufacture tools, by R. W. Clouse, W. A. Mitchell and J. C. Goodlet.

RUSHVILLE, IND. — Novelle Art Works Inc. has been incorporated with $25,000 capital and 100 shares no par value to manufacture metal products, by Mont Leakey, Henry Kuhn and associates.

Illinois

PEORIA, ILL.—Bentler Dispensing System Inc., 1223 Jefferson building, has been incorporated with 1300 shares capital stock to manufacture electrical and mechanical devices, by Covey, Covey & Covey, Peoria.

CHICAGO—Excel Projector Corp., 162 West Austin avenue, has been incorporated with 60 shares capital stock to manufacture still and motion picture cameras, by Sidney Oppenheim, 1703 City Hall Square building, Chicago.

CHICAGO — Harrington Memorial Bronze Co., 2110 Commonwealth avenue, has been incorporated with 400 shares capital stock to manufacture bronze memorials, by Edmund J. Harrington, 2110 Commonwealth avenue, Chicago.

CHICAGO—National Metal Products Corp., 1711 West Austin avenue, has been incorporated with 500 shares capital stock to manufacture steam, air and vacuum valves, by Fred W. Leuthesser, 1711 West Austin avenue, Chicago.

CHICAGO—Independence Waste Material Corp., 1100 Fairfield avenue, has been incorporated with 100 shares capital stock to conduct a scrap iron and metal business, by Ratner, Chapman & Ratner, 100 West Monroe street, Chicago.

CHICAGO—Pioneer Iron Works Inc., 1834 West Roosevelt road, has been incorporated with 10 shares common stock to manufacture ornamental iron work, elevator doors and gates, by Mort D. and Frank Goldberg, 11 South LaSalle street.

CHICAGO—General Utility Products Co., 140 South Dearborn street, has been incorporated with 20,000 shares no par value to manufacture electric utility appliances for domestic and commercial purposes, by William D. Shepherd, 7 South Dearborn street, suite 1201.

CHICAGO—Research & Development Corp. of Illinois, 341 West Superior street, has been incorporated with 1000 shares no par value to develop and refine mechanical devices, by Benjamin S. Mesirow, 1212 Conway building, 111 West Washington street.

CHICAGO—Manufacturers' Distributors Inc., 221 North LaSalle street, suite 1664, has been incorporated with 100 shares no par value to manufacture electrical and mechanical devices and machinery, by Hart, Frank & Shomberg, 33 North LaSalle street, Chicago.

CHICAGO—American Filter & Softener Corp., 29 South LaSalle street, has been incorporated with 15,000 shares no par value to manufacture water filters, and softeners and similar devices, by Ralph Mayer, 29 South LaSalle street, and associates.

Southern States

BIRMINGHAM, ALA.—Repair work on plant of Cosby-Hodges Milling Co., Fifteenth street and First avenue South, has been postponed indefinitely. Warren, Knight & Davis, Birmingham, are architects.

Texas

AMARILLO, TEX.—Hagy, Harrington & Marsh, Amarillo building, has let a contract to the engineering department of the Phillips Petroleum Co., Bartlesville, Okla., for construction of a gasoline plant in the Panhandle field, with daily capacity for 60,000,000 feet of gas.

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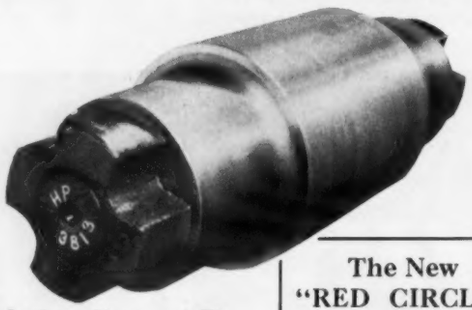

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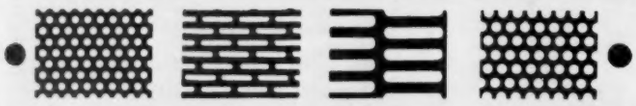

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